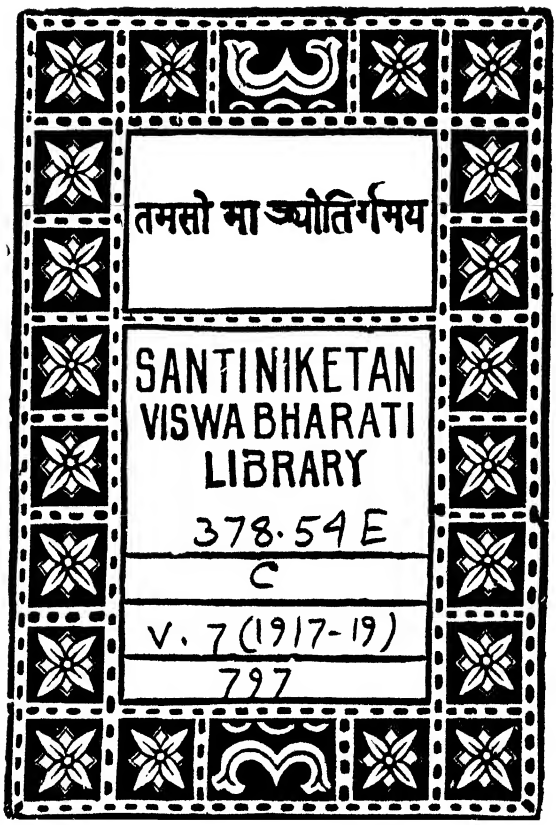
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Calcutta University Commission, 1917-19

REPORT

Volume VII

Evidence and Documents

GENERAL MEMORANDA AND ORAL EVIDENCE

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1919

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I. AGRICULTURAL EDUCATION.

General Memoranda.

CHATTERJEE, Rai Bahadur SARAT CHANDRA.

The object of providing agricultural education in a university may be stated as follows:—

(*a*) To train young men to adopt agriculture as a profession and thus provide new openings for them.

(*b*) To give an agricultural basis to our whole educational system.

(*c*) To raise agriculture to the dignity of other professions such as medicine, engineering, law, etc.

Before the first object can be achieved, however, it is essential that it should be definitely demonstrated that scientific agriculture will provide a decent income to the middle class young men. Once this is done, there will be no dearth of young men willing to receive agricultural training. This will greatly relieve the congestion in the sister professions. This is, however, mainly a work for Government. It is highly desirable that Government should have a large number of demonstration farms, which will be run to show how agriculture can be made to pay by following up-to-date methods.

It is very important that the agricultural degree should be exactly on a par with the other degrees and should be given equal recognition by Government. It is quite true that the object of making agricultural education a part of the university course will be frustrated if the people take the degree simply with the object of entering Government service. On the other hand, the people will tend to look down upon agricultural degrees if it is known that Government does not recognise this degree as of equal value with the other bachelor degrees. In addition to the Department of Agriculture which is rapidly expanding, there are various other departments where a knowledge of agriculture is likely to be of distinct advantage to the officers, such as settlement, court of wards, sub-deputy collectors employed in *Khas Mehals* or as circle officers, and inspectors of co-operative credit societies. In addition to these, zemindars might be encouraged to employ these graduates in their estates. A fair proportion of the zemindars (landlords) are now going to the University for the sake of a general training. They may profitably take this agricultural course which they will find very useful in after life. The inclusion of men trained in agriculture in the general administrative staff of the province is bound to reflect on the general agricultural practices of the people. It must not be forgotten that 85 per cent. of Bengal's population depend on agriculture for their living, and no system of education can be regarded as sound which does not take into account that after all agriculture must be Bengal's main industry. But the education given in the University must not be purely theoretical and must fit a man, after a reasonable period of probation, to carry on work on his own responsibility.

It may take a little time to establish a fully-equipped agricultural college, but a beginning could be made almost immediately either at Dacca or at Rangpur. There are three Government farms in Rangpur. Arrangements might perhaps be made to give the students a practical training on any of these. Rangpur has the unique advantage of having a cattle farm. The soil and climate of Rangpur is suitable for growing all the representative crops of Bengal. The district of Rangpur is essentially an agricultural district, and there is a large class of well-to-do zemindars (landlords) and jotedars (middle men) who also take to agriculture as one of their means of living. A majority of them could easily afford the cost of a university training if a practical course suitable for them were devised. They are already showing a great inclination for better and improved agricultural methods by accepting improved implements and also a better class of seeds, as will appear from the results of the different farms here.

Even if it be not possible to establish a fully-equipped agricultural college at once, it may be quite possible to include a few agricultural subjects in the curricula of the regular science course. The subjects which appear to me quite suitable for the purpose, and

CHATTERJEE, Rai Bahadur SARAT CHANDRA—*contd.*—GUPTA, J. N.

for the teaching of which arrangements could easily be made at Rangpur, are agricultural botany, including mycology; agricultural zoology, including entomology; agricultural chemistry, including dairy chemistry and the manufacture of sugar; mechanics, including the study of agricultural machinery, dairying and the study of the several manufactures from the different agricultural products, such as tobacco, sugarcane, etc.

A question was raised as to what openings in after life will be available for men who will thus be trained in any agricultural course in any university. I have already indicated how a number of them can be employed in the different departments of the Government service with advantage both to the people so employed and to the departments in which they are employed. Employments have also to be found for them by opening new industries and manufactories in this and neighbouring districts. The district of Rangpur and the neighbouring districts grow jute, tobacco, sugarcane and potato and also paddy in abundance and the bulk of the produce, and in some cases the entire produce, is sent far away from these districts for purposes of manufacture. But, if factories for the manufacture of materials from these raw products could be established in this part of the country, it would be a distinct advantage to the country itself, and they will serve to give profitable employment to many of the men trained by the colleges and universities, if they are properly taught on the lines of those industries and manufacture. There being at present absolutely no industry of the kind in this part of the country, capital is naturally shy. It will be for Government to encourage these industries in the first instance by the following means:—

(i) Opening up and managing factories, and gradually as they develope and people begin to appreciate their usefulness and value, to transfer them into the hands of local people forming themselves into limited companies.
(ii) Encouraging any industry that the local people may try to open up, by securing for them experts and expert advice for their proper management and conduct.
(iii) Encouraging the establishment of small home industries.
(iv) Developing and encouraging joint-stock companies on co-operative principles.

GUPTA, J. N.

In the special economic condition of Bengal and of India generally, it is obviously very important to have a recognised agricultural course included in the university curricula. It will be most desirable to raise agriculture to the dignity of other professions, and to provide suitable training for young men who might like to adopt agriculture as a profession.

Reforms and changes in the system and standard of University education must be preceded by simultaneous changes in the education to be imparted in our schools. The question of agricultural education in rural schools has been discussed by me in my pamphlet "Rangpur To-day."

As regards the creation of a new degree in agricultural education and the popularisation of agricultural education, it is obvious that as in the case of industrial education agricultural openings will have to be created, and it must be demonstrated that scientific agriculture will provide a decent living to the middle class young men. Once this is done there will be no dearth of young men willing to avail themselves of agricultural training. This is, however, mainly a work for Government and for public-spirited zamindars. It is highly desirable that Government should have a large number of demonstration farms which will be run with a view to proving that agriculture may be a profitable occupation if improved methods are followed.

It is also important that the agricultural degree should be exactly on a par with the other degrees and should receive equal recognition. It may be urged that the object of making agricultural education a part of the university course will be frustrated if the people take the degree simply with the object of entering Government service. But as matters stand now in all professional studies like engineering, medicine, etc., a large proportion of the students necessarily consist of those seeking employment either under Government or with private parties. But it is only a few who secure such appointments,

and the surplus graduates have now built up a private profession in each of these branches. There is every reason to believe that similar will be the case with agriculture where the field is very much larger. But it is essential that the necessary educational facilities should first be given. The Department of Agriculture is rapidly expanding and Government is gradually associating Indians with the higher branches of the service. It is very desirable that there should be some institution in the province itself which will fit them for carrying on investigations and for qualifying for these higher appointments. In addition to the Department of Agriculture, which is rapidly expanding, there are various other departments under Government where some knowledge of agriculture will be of distinct advantage to the officers. Some of these may be named, *e.g.*, settlement, court of wards, *Khas Mehats* or circle system and co-operative credit. In addition to these departments of Government, zamindars are also likely to employ these graduates in their estates. It is also likely that sons of zamindars who are now going to the University in increasing numbers for the sake of general training might like to take the agricultural course instead of the arts course.

The agricultural education to be given in the University must not, however, be purely theoretical and must fit a man, after a reasonable period of probation, to carry on either practical or scientific agricultural work on his own responsibility. A farm must therefore be attached to an agricultural college where the students will undergo practical training along with their studies. It may perhaps be necessary to make the bestowal of a degree conditional on the completion of a year's practical training on a farm. However carefully devised, a practical training is hardly satisfactory unless the man going through it has an opportunity of doing some responsible work, and this is very difficult to arrange during the college course.

It may take a little time to establish a fully equipped agricultural college in Bengal, but a beginning could be made almost immediately either at Dacca or at Rangpur, and arrangements might perhaps be made to give the students a practical training on any of the three Government farms at Rangpur. Rangpur has the unique advantage of having a cattle farm. The soil and climate of Rangpur are suitable for growing all representative crops of Bengal. The district is a purely agricultural one and there is a large class of small zamindars and well-to-do jotedars (landed proprietors) who depend on agriculture for their living. They would receive great practical benefit if they had an agricultural education, and most of them could easily afford the cost of a university training if a practical course suitable for them were devised. Even if it be not possible to establish a fully equipped agricultural college at once, it may be quite possible to include a few agricultural subjects in the curricula of the regular science course. The following subjects appear to me quite suitable for the purpose, arrangements for which could easily be made at Rangpur, *e.g.*, agricultural botany, including mycology; agricultural zoology, including entomology; agricultural geology, including study of soils; agricultural chemistry, including dairy chemistry and manufacture of sugar; mechanics, including study of agricultural machinery, dairying and the study of some special crops, such as tobacco or surgarcane.

HENDERSON, G. S.

The only point on which I can give information with regard to the enquiry of the Calcutta University Commission, is about my experience with graduates of the Poona Agricultural College which is affiliated to the University of Bombay.

The Poona Agricultural College is one of the oldest of the agricultural colleges in India, and should be in as good a position as any in India, as staff and establishment have been provided on a liberal scale. Consequently, results drawn from this college should be of considerable interest as bearing on the subject matter under enquiry by the Calcutta University Commission.

I was stationed in Sind from 1907 to 1915 in charge of the Agricultural Department and during this time practically the whole existing department in Sind was built up. This meant opening out demonstration and experiment farms in various parts of the

country and building up and training a staff for experiment work, for demonstration work and for itinerant instruction work, etc.

It was decided that the work in Sind should be kept back till graduates were ready from the Agricultural College, Poona.

On account of the rigour and unhealthiness of the climate in Sind, it was found impossible to tempt graduates who were residents of other parts of the Bombay Presidency, to take positions in Sind. In any case the language difficulty would have been a serious bar.

Posts might have been filled with candidates from other departments such as the Public Works Department, etc., but it was considered that, to encourage college graduates, the majority of the posts should be filled by college graduates. Much urgent and important work had to be left or only partially carried out.

Students for training at Poona were recommended by district officials. They received monthly allowances and in some cases special concessions were made with regard to entrance examination to the college.

The results were very bad, the quality of students varied from fair to very bad. They were especially weak in practical work and in ordinary common sense. For farm work, both for research and district work, they lacked a practical outlook on common affairs. For general work they were inferior to corresponding non-graduate "fieldmen."

I am not prepared to state where the training or selection of the students was defective, but it is obvious that one or both were faulty.

I am of the opinion that rigorous selection of the candidates should have been carried out by the officer in charge of the agricultural work in Sind, and that this officer should have had opportunity to inspect the progress of the students during training.

Further, Lyallpur Agricultural College in the Punjab, as being in a tract much more closely related to Sind, would probably be suited to train Sindhi students.

The above is a record of actual experience, but the writer is not in a position to draw the moral or suggest remedies.

HIGGINBOTTOM, S.

Outline of a scheme for the raising of the whole standard of Indian rural life by means of the further development of agriculture and rural education.

India is primarily an agricultural country. Any large and widespread increase in the revenue of the country must therefore come *from* the land and *through* the villager and the small farmer. Agricultural improvement and elementary education must go hand in hand. They are mutually dependent upon one another. There must be an increase in yield per acre or land unit and at the same time a decrease in the cost per man (or labour unit). In short, the farmer must be taught how to produce larger crops per man and per acre, at a greater profit, than those which he reaps today, in order to have the means to pay for his education.

The representative of agriculture on the Provincial Council should be "Member for Agriculture and Education" and not "Member for Agriculture and Revenue." Under the Member for Agriculture and Education should come the Director of Agriculture and the Director of Public Instruction. It is only by such an arrangement that a spirit of co-operation between the two departments can be obtained which is so essential.

In its own sphere the Agricultural Department should maintain the following:—

A research institute and experiment station in each soil and climatic area.—This will be devoted mainly to laboratory work, to the scientific investigation of crops and the increase of their yields, to the discovery of the most favourable conditions for their growth, to the control of insect pests and animal epidemics and diseases, to the study of such factors as the increase in content of butter-fat in milk, the colouring matter in indigo

HIGGINBOTTOM, S.—*contd.*

and the fertilising value of artificial manures, and to the introduction and breeding of new and more profitable varieties of field crops. On the experimental farm attached tests would be made under field conditions comparable to those in the neighbourhood. All results would be published whether positive or negative, in the form of scientific or popular bulletins. The staff should not have any regular teaching work in the college, but would be required to deliver a number of popular lectures every year either in the agricultural college or out in the district in order to keep them in touch with the villager and the small farmer whose servants they really are.

Demonstration farms.—There should be a demonstration farm in every district in the hands of trained men. The staff of such a farm should include a geneal manager, and three men trained in dairying, horticulture and the production of field crops respectively. One member of the staff should always be on the farm in order to show visitors round. At least one member should always be on tour in the district. The best seed, the best manures, the best kind of seed bed, the best methods of cultivation, harvesting and marketing would be practically illustrated on such a farm. It would be the duty of the travelling demonstrator to induce individual farmers and village co-operative societies to follow the best known practice with reference to every side of their field treatmentand farm management.

Local and provincial fairs.—Such fairs should be held annually in every part of the province and they should be made so interesting that side shows unconnected with agriculture would find it unprofitable to be present. The research and experiment station should combine with the college and the demonstration farms to make this aspect of the work of the department a success. Courses of lectures should be given and prizes offered to villages, co-operative societies, boys' and girls' clubs and to individual competitors. Improved tools, seeds and implements would be on show as for sale and every inducement would be made to the farmer to send his sons to receive agricultural training at school or college.

Popular bulletins.—These should be well arranged and illustrated. They should be cheap. They should be translated into every dialect in the province and given wide distribution.

The sphere of reforms as far as the Department of Education is concerned should include :—

(i) *Rural schools.*—One teacher in every rural school who had been trained in agriculture. Attached to every rural elementary school would be a school garden divided up into plots seven feet long by three and a half feet wide. Each student should have a plot of his or her own. The trained teacher would supervise all these plots as well as the home gardens which the boys would be encouraged to grow. The boys would be formed into clubs to grow on the farms of their fathers a small unit area of some special field crop. If the boy produced a better crop under the new methods he had learnt at school, the father would not be long in adopting the new methods himself. The schools should, where possible, be situated close to the demonstration farms and the demonstrator could, where convenient, teach in the school. These proposals apply to every kind of rural school of whatever grade, primary, middle, or high.

(ii) *An agricultural college.*—There should be at least one properly equipped agricultural college with an adequate staff giving graduate work in every soil and climatic area, adjoining where possible a research institute. It would train men as follows :—

(*a*) For posts in the agricultural department :—
  (1) For research work in the laboratory.
  (2) For experimental work.
  (3) For demonstration in farm and village.

(*b*) For posts as teachers in schools and colleges,

(*c*) To farm their own land profitably, or that of large zemindars and land holders, or to farm as tenant farmers.

HIGGINBOTTOM, S.—*contd.*

Details of staff for an agricultural college.—A minimum number of subjects each requiring a trained teacher :—

For elementary work—

A teacher in each of the following :—

1. English.
2. Mathematics and surveying.
3. Physics.
4. Chemistry.
5. Geology.
6 Botany.
7. Zoology
8. Entomology.
9. Economics.
10. The theory of education and teaching (for intending teachers).

For purely agricultural work—

A teacher in each of the following :—

11. Agricultural engineering.
12. Soils, including irrigation and drainage.
13. Field crops.
14. Horticulture.
15. Animal husbandry.
16. Dairying.
17. Economic botany.
18. Economic entomology.
19. Farm management (controlling practical work of students).
20. Rural economics (co-operation, accounts).
21. Bacteriology.
22 Meteorology.
23. Personal and social hygiene (physician).

In addition to the posts mentioned in this list there would also be required a principal, whose duties would be chiefly administrative and who would be in charge of the college office with an adequate staff of stenographers and book-keepers, a librarian and a staff of instructors and demonstrators. For the adequate training and supervision of 400 students this staff would be none too large.

Every teacher would be expected to spend at least one month of the year on tour, keeping in touch with the demonstration farms and delivering popular lectures in his subject. He would also be expected to keep himself up to date in his own course by means of research as well as by reading the latest books and bulletins.

The farm physician would be expected to give courses of lectures in rural sanitation as well as to take charge of the athletics and general physical welfare of the students.

The college farm.—Attached to every agricultural college would be a college farm, on this farm every student would get his practical work. The farm would be under the control of the teacher in farm management, it should include a model dairy and should therefore include not less than 150 acres of good land for the growing of fodder crops. In addition to this there should be 400 acres of land divided into five acre plots (see Note 5 of the curriculum). These plots should not be less than five acres. Such a plot can easily be handled by three students in those hours set aside for practical work. They should be able to live on these plots and if properly farmed they should not find it difficult to make a net profit of from Rs. 75—100 per acre per year.

The size of a college farm should certainly not be less than 750 acres. With class rooms and laboratories for each subject and sufficient to accommodate 400 students with the farm buildings, dairy *silos*, and shed for working cattle, and with bungalows for the staff a piece of ground covering 1,000 acres is none too large. Room should be allowed for growth.

HIGGINBOTTOM, S.—*contd.*

APPENDIX.

TENTATIVE FOUR YEARS' COURSE IN AGRICULTURE.

Leading to the degree of B.Sc. in agriculture.

FIRST YEAR.

First term.		Credit Hours.	*Second term.*		Credit Hours.
Animal husbandry (101)	2L.	1Lab.=3 hours.	Animal husbandry (102)	2L.	1Lab.=3 hours.
Chemistry (101)	3L.	2Lab.=5 ,,	Chemistry (102)	3L.	1Lab.=5 ,,
Botany (101)	2L.	1Lab.=3 ,,	Botany (102)	2L.	1Lab.=3 ,,
Geology (101)	1L.	1Lab.=3 ,,	Economics (102)	1L.	2Lab.=3 ,,
English (101)	2L.	2 ,,	English (102)	2L.	2 ,,
Personal hygiene (101) (physical culture).	1L.	1 hour.	Social hygiene (102) (and games).	1L.	1 hour.
TOTAL		17 hours.	TOTAL		17 hours.

SECOND YEAR.

Agronomy (201)	2L.	1Lab.=3 hours.	Agronomy (202)	2L.	1Lab.=3 hours.
Zoology (201)	2L.	1Lab.=3 ,,	Entomology (202)	2L.	1Lab.=3 ,,
Chemistry (201)	2L.	2Lab.=4 ,,	Chemistry (202)	2L.	2Lab.=4 ,,
Physics (201)	2L.	2Lab.=4 ,,	Physics (202)	2L.	2Lab.=4 ,,
Dairying (201)	2L.	1Lab.=2 ,,	Agronomy (212)		2Lab.=2 ,,
Rural sanitation (202)	1L.	1 hour.	Rural sanitation (202)	1L.	1 hour.
TOTAL		17 hours.	TOTAL		17 hours.

THIRD YEAR.

Agronomy (301)	1L.	1Lab.=2 hours.	Agronomy (302)		2Lab.=2 hours.
Horticulture (302)	2L.	1Lab.=3 ,,	Horticulture (302)	2L.	1Lab.=3 ,,
Agronomy (311)		2Lab.=2 ,,	Agronomy (312)		2Lab.=2 ,,
Economics (301)	4L.	=4 ,,	Economics (302)	4L.	=4 ,,
Agronomy (321)	3L.	1Lab.=4 ,,	Agronomy (322)	3L.	1Lab.=4 ,,
Bacteriology (301)	1L.	1Lab.=2 ,,	Bacteriology (302)	1L.	1Lab.=2 ,,
TOTAL		17 ,,	TOTAL		17 ,,

FOURTH YEAR.

Rural economics (401)	4L.	4 hours.	Rural economics (402)	4L.	4 hours.
Veterinary medicine (401)	3L.	3 ,,	Veterinary medicine (402)	3L.	3 ,,
Each Student to specialise in one of these three subjects.					
1. Horticulture (401)		10 hours.	Horticulture (402)		10 hours.
2. Animal husbandry (401)		10 ,,	Animal husbandry (402)		10 ,,
3. Agronomy (401)		10 ,,	Agronomy (402)		10 ,,
			Thesis of 5,000 words by all students.		
TOTAL		17 ,,	TOTAL		17 ,,

L.—Lecture period of one hour.
Lab.—Laboratory period of 2 hours.
(2*Lab.*).—2 Laboratory periods of 2 hours each, or 4 hours work.
Credit hour.—One hour per week for the half term.
The numbers in brackets are the numbers of the course.
The college year lasts from about June 21st to April 15th of the following year. This scheme allows for ten days holiday at *Dussehra* and two weeks at Christmas.

FIRST YEAR.

Animal husbandry.—(101) This course of study should cover the different breeds of cattle and horses of India with special reference to those of the farmer suited for draft and milk respectively.

Animal husbandry.—(102) A continuation of (101) but dealing with sheep, goats and poultry.

Chemistry.—(101) An elementary course followed by (102) which leads to qualitative analysis.

HIGGINBOTTOM, S.—*contd.*

Botany.—(101) A general course with special reference to crop production. This will lead on to agronomy (202) and botany (102) which is a continuation of (101).

Geology.—(101) A general course covering the identification of minerals. Laboratory work during the last month consists of field trips in the neighbourhood for rock study (at Allahabad and Shankargarh). Special emphasis should be placed on the relation of geology to agriculture.

Economics.—(102) The study of farm accounts and methods of keeping account books, of invoicing and of farm records. Each student must keep a complete set of books for a specified period of time.

SECOND YEAR.

Agronomy.—(201) The study of soil formation, its physical and chemical properties, its tillage, treatment, fertilisation, irrigation, aeration and drainage. Laboratory experiments to show all the chief factors which govern crop production.

Agronomy.—(202) The study of field crops, their characteristics, their improvement and selection.

Zoology.—(201) The study of general zoology, including the dissection of at least one animal.

Entomology.—(202) The study of insects especially harmful or beneficial to farmers. Their remedy or control.

Chemistry.—(201) The qualitative analysis of feeds, soils and fertilizers.

Chemistry.—(202) Quantitative analysis.

Physics.—(201) General physics with a special reference to dynamics followed by (202) which is a continuation of same and reference especially should be made to magnetism and the theory of electricity and its uses.

Dairying.—(201) The different types of diary cattle with practical work in caring for them. The production and marketing of milk. Dairy products and their successful manufacture.

Agronomy.—(212) The principles of mechanical drawing, map making and blue printing.

THIRD YEAR.

Agronomy.—(301) Use of theodolite, practice in levelling, contour work, road construction, drainage, the mechanics of irrigation and the laying out of a farm.

Agronomy.—(302) Building plans, the construction of *silos* and dairy barns, with practice in original designing.

Horticulture.—(301) A preliminary study of horticulture with reference to fruit trees, their propagation and care, landscape gardening, followed by a course in vegetables (302). The preservation of vegetables, canning and bottling.

Economics.—(301), (302) Principles of political economy. Co-operation.

Agronomy.—(311) Forge practice. Work in bending and welding iron, the making of chisels, punches, and the hardening of steels of varied carbon content.

Agronomy.—(312) Carpentry-joining, planing, glueing, dovetailing and pattern making.

Agronomy.—(322) Elementary principles of farm mechanics including the study of simpler farm machinery.

Agronomy.—(322) Advanced farm mechanics, petrol, oil, crude oil, steam and gas engines, electric motors, magnetos and dynamos.

Bacteriology.—(301) A general study of elementary bacteriology, to prepare students for the more advanced work demanded by the fourth year special subject. This might be dairying, or soil work according to the students' choice of special subject.

FOURTH YEAR.

Rural economics.—(401) The study of Indian agricultural conditions with reference to the economic effect of these conditions on the cultivator. Agricultural problems of India in relation to their legal, social and political aspects. Methods in demonstration work, whether on farms, demonstration tours or at fairs and shows.

Rural economics.—(402) A continuation of (401). The study of the principles of co-operation and their application to the villager, the small farmer and the zamindar. The

HIGGINBOTTOM, S.—*contd.*

need for village co-operative credit and banking in the purchase of tools, fertilizers and machinery, in the building of wells and *silos* and in the trenching and sanitary disposal of all village refuse and manure.

Veterinary medicine.—(401) The study of the anatomy of farm animals, their disease, and the symptoms and remedies of those diseases. The control of epidemics. This course is intended not to supplant the veterinary surgeon, but rather to enable the farmer to know when to call him in.

Veterinary medicine.—(402) Continuation of (401).

Note 1.—All the above subjects will be compulsory for fourth year men. Besides these the student must choose one of three courses in which to specialise and for which there will be a credit allowance of ten hours. Each course will be under the supervision of the professor of that department and will include lecture, laboratory, practical and research work. The whole of the work in any special subject will be advanced work, designed to fit the student to obtain his living by following up the branch which he has chosen for specialisation.

2.—All fourth year men will be required to write a thesis on some phase of the advanced course in which they have specialised. This thesis shall contain not less than five thousand words. Lectures and laboratory work should be given on four days in the week and practical work and field trips on the other two days throughout the year.

3.—No regularly scheduled classes will be given in English after the first year, but the different departments shall call regularly for written work which shall be graded on its merits as to the subject matter as well as on the standard of its English. There will be a compulsory literary society. Every student shall write essays and orations for this society and shall also have practice in the arts of composition, debate and public speech.

4.—According to the season, visits should be arranged to special districts in order to study at first hand the growing of sugar, rice, cotton, wheat, jute, etc., respectively, as well as to inspect local fairs and other agricultural colleges.

5.—Practical work on the farm of every kind will be compulsory for all first year students. Part of the college farm should be set aside and divided into plots of five acres each. A fourth year student should be directly responsible for each plot. He should have attached to it one second and one third year student as assistants. These plots should be run under economic conditions as near to those of an Indian village as possible. The fourth year student will keep all the profit he can make from his plot. He will have to pay for the land, for the use of oxen, water, manure, machinery and anything else which he hires from the farm. In this way every student will have some individual responsibility directly thrust upon him. He will be encouraged and enabled to obtain advice and information from the professors whenever he needs it. There is no other way in which a student can reap so much valuable experience of such a valuable nature.

6.—There should be a physican attached to the college who would deliver lectures on personal hygiene, rural sanitation, including the prevention and control of plague, malaria, small pox, and other diseases to which rural India is an easy prey to-day. He would be in charge of the physical well-being of the college, its athletics, games and physical culture.

Rural education and agricultural development.

The line of advance which I here put forward cannot, at a time like this when change is the order of the day, be entirely immune from criticism. Many of the conclusions drawn are the direct result of my own experience in Gwalior and in Allahabad. Others are the product of a mind which is still open to criticism and conviction and which certainly lays no claim to infallibility. In laying the emphasis where I do, I have no wish to ignore the fact that the choicest leadership in the history of the world is found among men who in their youth have been well grounded in literature, philosophy and the classics. In other words the much maligned ' classical education ' with its emphasis upon Latin, Greek and ancient history does stretch the students' imagination, broaden his mind and give wings to his thought where a purely technical education tends to narrow his outlook and to starve his humanity.

2. Cursed with illiteracy and stricken with poverty and debt any progress in rural India at present is well nigh impossible. It is not unusual to hear educated people engaged in literary pursuits inveighing against science and the materialism of the modern world. But history shows that no great civilisation or culture has yet been produced which had not at its base some degree of that economic security which India now lacks. Greece had her slaves, Rome her yeoman farmers, Italy and ancient India their patron princes. The condition of the English agricultural labourer of the middle ages was in many ways parallel to that of the Indian villager to-day, yet within less than a century a condition of economic security was established amongst the lowest classes in the social scale which has never since been excelled. No purely rural population has ever produced that wealth of art, of architecture, drama, poetry, song and dance which England has inherited from " the spacious days of Queen Elizabeth." All that is claimed for the scheme set down below is that it will give to the Indian villager his chance and to India the opportunity of producing a leadership of " philosopher statesmen " rather than the lawyer politician of to-day. I do not claim that mine is the only road of advance. There is no wholesale panacea for the present troubles of India. Industrial development, educational reform and political change all have their place to-day in the general programme.

HIGGINBOTTOM, S.—*contd.*

But I do say that, at this moment, the road which I am advocating is the most simple, that it demands a smaller outlay of capital than any other and that the reward is immediate and out of all proportion to the initial sacrifice. Neither the prevention of erosion, the economic disposal of organic waste, the adoption of co-operation nor the building of *silos* for fodder storage demand much outlay of capital but their return in cash profit within a few years would be incalculable.

3. It may be objected that the road of reform in education which I wish to construct is merely the road to a "Dollar Education." If it will give the villager his chance, if it will free him from debt and the chains of circumstance with which he is now fettered, if it will put literacy within his grasp, is a "Dollar Education" not worth while?

4. Education, as at present conceived in this country, has failed to touch the Indian villager. He regards it with suspicion and dislike. No one, who has studied the history of Indian art, craftsmanship and philosophy, will be prepared to condemn him as hopeless. The present system has failed to meet the needs of the Indian people. It is a system patterned upon Oxford and Cambridge, but it has adopted the form, the degree, the lecture, and the examination, and has missed the spirit which lies behind these great institutions. Too often the Indian professor or teacher is little more than a drudge. If he returns to the West in middle age he finds he has dropped into the lower ranks of his profession. If the present system of elementary education succeeds, the cultivator loses his boy and the village its most enterprising citizen. The way out is not to be won by throwing over any of the existing educational machinery in order to make a fresh start from the bottom, nor is it to be reached by working from the top down in order to produce a literacy for election purposes. True progress must come from both directions, but before it comes we have got to be much clearer as to the goal towards which we are striving than we are at present. We have got to reach the man at the bottom and create in him a desire to rise above the conditions which hold him in bondage and to enable him and his children to realise a higher ideal of life and a nobler conception of citizenship. Neither the scientist nor the educationalist can any longer afford to let their eyes wander in search of the letters that may one day be affixed to their names nor to their professional position and *kudos*. The ryot to-day is robbed of the fair reward of his toil and it is useless to talk of universal education until he is able to pay for it, or to draw up schemes of compulsory elementary teaching until the village is in a position to support its own school and teaching staff. Those responsible for the guiding of the industrial and agricultural policy of this country must shape their programme for the future to this end and not merely towards India's commercial supremacy in foreign markets.

How then is the outlook of the villager to be changed and what are the immediate steps which may be taken to achieve this end? *We must go to him where he is.* We must find out how scientific knowledge can best be brought under his notice and how he can reach a position from which he can take advantage of it. He is conservative, and rightly so, he has been stung so often in the past. Once prove to him that co-operation and improved agricultural method can solve his problems and he will quickly come to believe that some kind of education is good for his son. To this end the departments of agriculture and of education must work in the closest of co-operation. They are mutually dependent upon one another. Practical suggestions for such co-operation I have made elsewhere. Here I wish to deal with the steps which should be taken immediately in view of the machinery which now exists.

On the part of the Agricultural Department the present agricultural colleges should be greatly reinforced, and the number of demonstration farms increased. New demonstration farms should be established in every district as fast as students can be trained to manage them. From existing demonstration farms as many tours should be arranged into the districts as the staff of the farm permits. Far more bulletins should be sent out from the existing research institutes of a popular, rather than of an highly scientific nature. These should be translated into the different dialects and made simple enough for distribution in the villages. Agricultural fairs and village shows are profitable investments rather than unnecessary wartime expenditure.

Similarly in the Education Department every rural school, primary, elementary and high, should have a teacher trained in horticulture and a garden attached to the school.

Already every rural teacher in the Allahabad district board schools has either attended a ten days or a one year course at the Jumna Mission Farm, and every rural primary school has its own school garden. Most of these school gardens are now fenced in. They should be divided into small plots so that each student is made responsible for his own plot. A garden which is common to the whole school will not work, for this element of responsibility is lacking. There is no reason why every rural school in India should not start this system immediately.

For a substantial move forward there is little doubt that we shall have to wait until the war is over. It is impossible to increase the number of research institutes or of agricultural colleges without a great increase in trained men of a kind which it is impossible to obtain to-day, but meanwhile the greater the advance of the co-operative movement in India and the more we make use of existing schools and institutions the sooner shall we be ready for them when they are available.

SARKAR, PROKASH CHANDRA.

I make the following suggestions :—

(*a*) That travelling agricultural lectureships after the lines adopted in England by the universities of London, Leeds, Durham, Glasgow, Aberdeen, Cambridge, Oxford and America by the departments of agriculture and education, may be established in this country for the real weal, benefit and education of the vast body of illiterate peasantry of the land and that lectures be delivered in agricultural centres in the languages of the land.

(*b*) That the agricultural departments of the country be remodelled and reconstituted after the European and American models and be placed under the education department so as to be of real use and utility to the actual peasants and farmers of the land, and that the Calcutta University Commission may be pleased to advise Government accordingly.

(*c*) That dairy farming, poultry farming, stock raising, and allied subjects and arts, as they have in Europe and America, may be scientifically (both theoretically and practically) taught in the country to open various avenues for the future livelihood of the masses of India.

Oral Evidence.

MILLIGAN, S.

14th February 1918.

Control of agricultural farms.—The existing agricultural farms should remain under the control of the Department of Agriculture. It would not be wise to transfer them to the Department of Education as they have been established primarily for purposes of agricultural research. The work of the Department of Agriculture would not be conducted without them. It would not also be advisable to affiliate the farms to the University. No advantages would be gained thereby and the witness foresaw great disadvantages.

2. *Practical training.*—Theory cannot be divorced from practice in agriculture. There is no difficulty in arranging for practical training of students on the farms. Facilities have been offered by Government at the Dacca farm, but have not been availed of. To be of any value, the training must be continued for some time. Short courses are of little use for non-agriculturists. For example, if a boy comes for a short course on a farm after the crops have been sown, he will learn nothing about the preparation of the land and *vice versâ*. If the training is to be of any lasting benefit, students should reside on the farm and be constantly employed on farm work.

MILLIGAN, S.—*contd.*

3. *Opportunities of employment for graduates in agriculture.*

(*a*) *Farming.*—Very few people have made their fortunes as farmers. This is true of most countries and especially of Bengal. Owing to the deltaic conditions of Bengal, small holdings are the rule. Under such circumstances it would not be possible for a college trained boy to compete successfully with the ryots. There is some possibility of making money out of tea and such industries. The educated classes of Bengal do not take to farming as a profession. The witness only knew of a few instances and unfortunately they were failures.

There would be some scope in dairy farming if good milking cows were obtainable. But money cannot be made out of cattle-breeding, at least in the initial stages.

(*b*) *Land agents.*—A training in scientific agriculture was not necessary in the case of land agents: on the other hand, training in civil engineering was very badly needed. There was an enormous amount of work to be done in irrigation and drainage works on private estates.

(*c*) *Agricultural department.*—It is not a good speculation for a boy to undertake the study of agriculture in the hope of obtaining a post in the Department of Agriculture. The present scheme of recruitment includes one agricultural officer—a man of the type turned out by the agricultural college—for each district in Bengal. In other words, there would be little more than one vacancy a year in Bengal. If the personnel of the department is increased to an agricultural officer in each sub-division—the number of such vacancies might possibly be increased to four a year. In addition there are a few farm overseers who receive Rs. 75 to Rs. 200 a month. (A superintendent of agriculture in charge of a division receives Rs. 200 to Rs. 400 a month.)

University training in agriculture is therefore at present in the nature of a blind alley as the prospects of profitable employment in agriculture are poor and the training is unsuitable for anything else.

4. *Demonstration farms and agricultural colleges.*—The witness hoped to start a small demonstration farm in each district, some twenty in all. Their functions will be to test the local application of results and the solution of local problems. Each farm will be a little smaller than the one seen by the Commission at Rajshahi. Training in "scientific" agriculture is given at the Sabour College which belongs jointly to the provinces of North-East India. The farm at Sibpur had not been a failure, as some of the best men in the local Department of Agriculture were trained there. The agricultural and residential conditions of Sibpur, however, are not as good as say those at Dacca. Calcutta is a commercial and industrial rather than an agricultural centre. The witness understood that the Poona Conference only advised the constitution of an agricultural college when the conditions of any particular province demanded it. The Department of Agriculture in Bengal could not spare men for teaching in the college without seriously interfering with its own work.

5. *Primary school education.*—Money would be better spent on primary schools where a good elementary education could be given to agriculturists than on specialised training in agriculture in schools or colleges. It is more essential for the agricultural development of the country that the peasants should be able to read and write than that a few graduates should be turned out possessing an agricultural degree. The witness did not approve the proposal that agriculture be included as an optional subject in the Matriculation. On the other hand, he saw some value in a few lessons in agriculture provided that they could be made sufficiently interesting. Agricultural readers might also serve a useful purpose if they were compiled by such men as Dr. Coleman, Director of Agriculture, Mysore, who was keenly interested in the subject and had sufficient experience of both educational methods and agriculture. He did not agree with the Pusa and Simla conferences that it was possible to provide the teacher who could both carry on the work of a teacher and give instruction in agriculture. Nobody could speak with authority on agriculture unless he had been actively engaged in agriculture for some time. The witness, however, would welcome the employment as teachers in rural schools of men who had some idea of the meaning of agricultural development. For this reason it would be well if during their

MILLIGAN, S.—*contd.*

time of training future teachers in rural areas had some intimate connection with attempts to improve the agriculture of the country. For this reason it would be an advantage that the place of training should be close to a demonstration farm.

6. *Practical education.*—The witness was strongly of the opinion that for many boys the school teaching immediately before and after the matriculation stage should be practical. There was scope for boys who had received a sound practical training in engineering and a general knowledge of agriculture rather than scientific details. A good knowledge of colloquial English was also necessary. A boy so trained would be worth a comparatively good salary as an estate manager. The witness did not contemplate a much greater use of machinery in the near future although hired labour was inefficient. Training in mechanical engineering, however, would be beneficient to the individual in particular and to agriculture in general. In reply to a question as to the possibilities of the co-operative movement supplying machinery the witness stated that the co-operative movement had many difficulties to surmount before that would be possible.

7. *The Loni school.*—The witness thought that from an agricultural stand-point the agricultural school at Loni had been a failure. This was not essentially due to the fact that there was no room for such a school, but because the system of cultivation at Loni had not yet been adapted to the peculiarities of the soil of the place. The Poona College had, he considered, been successful. A good type of graduate had been trained there, some of whom had gone back to the land. In the Bombay Presidency, however, the size of the holding is much larger than that in Bengal, an essential difference when it comes to a consideration of the educational requirements of the two provinces.

II. COMMERCIAL AND INDUSTRIAL EDUCATION.

General Memoranda.

GAMLEN, R. L.

I am writing in answer to a request to submit a short note with respect to what has been done at Hyderabad, what I would like to do, and my ideas in regard to technical training.

Some workshops were originally built at Hyderabad when the Mint was founded in order to deal with the repairs to the mint machinery. A staff of men was also engaged to look after the work. This answered the purpose when coining operations were going on, but when there was no necessity for coining the whole plant and staff were idle.

When I took charge of the Mint nine years ago, coining had been stopped for nearly a year, and it looked as though but little was likely to be done in the near future. I therefore requested sanction from Government to allow me to expand the activities of the workshop by undertaking work for the other State departments in order to utilise the men and plant. Shortly after, when things were getting into a working condition, I conceived the idea of making use of the workshop for training boys and I was anxious to start a school in connection with it. The idea, however, was not carried through. I then had hopes of co-ordinating various other technical efforts that were being made in the area, but these came to nothing. I also tried sending a class of more highly educated boys to the Science Department of the Nizam's College, but as it was some distance away, the attendance proved most unsatisfactory, and I gave that up. I have now started a class for teaching elementary science to the moderately educated boys. Instruction is being given by the men who are in charge of the various sections of the Electricity Department. At present there are 30 students and the attendance is regular. Tuition is given for only one hour daily. The engineers have not time to give more. They arrange, however, for the students to do an hour's home work and, by paying visits, efforts are being made to utilise whatever small plant of various kinds there may be in the district for adding to their general knowledge of engineering principles. This, of course, is merely tentative and intended only to pave the way, if successful, to more systematised teaching. From these students it is hoped to select a few men who are likely to become engineers. I had hoped that all the other boys who came to work here might have been able to get primary education outside, but this has not proved feasible. I have therefore arranged to give tuition in the Mint. All the boys are to be taught to be literate in vernacular and elementary arithmetic. Wherever possible, Urdu is used as being the most generally useful language in the State. Telugu, however, is being taught where boys are already half trained in that language. A class for boys literate in Urdu or Telugu has been formed for teaching English, arithmetic, mensuration and decimals, and they will be taught later to understand simple drawing. Tuition for two hours a day is being given to each boy, the rest of the time is spent in handicraft. The teachers are taken from the clerical staff, and they are given a small allowance for the extra work. We have at present some 150 boys who are doing apprentice work and who attend this primary school.

As regards my opinion on the subject of technical education, I consider that for the handicraftsman there is no better system than the very ancient one of apprenticeship, *i.e.*, learning at the hands of one who is carrying on the business. For this reason I am entirely against the principle of attempting to teach handicrafts as an adjunct to a technical school. I think that handicraft should be taught in commercial undertakings, whether under the control of Government or of private individuals, and that sufficient time should be allowed by the firm, say two hours daily, to the apprentice for acquiring so much literary education as may be essential to his calling. It would, of course, be of the greatest importance that any firms undertaking to teach boys should select craftsmen of the highest obtainable skill and that, if this proved at first to be commercially unprofitable an allowance might be given to balance the loss. The high quality of the work which will be turned out after a little time would more than make up for the extra

GAMLEN, R. L.—*contd.*

wages paid. Considering then the fine handicraftsman, the whole of whose powers are devoted to the carrying out with his own hands certain specified work, practically the limit of what is required, other than actual skill in handicrafts, is ability to read instructions that may be written and to understand sketches from which his work has to be carried out. The first and foremost thing, however, is that he should be extremely capable in the use of his hands and the appliances of his trade. I do not think that he should only be given sufficient literary education to enable him to read and write his own vernacular or the most useful vernacular in the district, to understand arithmetic and mensuration, including fractions and decimals, and enough English to be able to understand the directions that may be sent with drawings. I do not think that the average boy should be pressed any further, and I think that two hours a day is all that should be allowed for schooling, the rest of the working day being devoted to the acquirement of the special handicraft for which he is qualifying. Among these boys, no doubt, a few will show themselves particularly clever and these could later on add to their schooling some information on helpful subjects, such as strength of materials, application of mechanics and the action of steam according to whatever branch they wish to specialise in. This would enable them to become useful foremen. A few, perhaps, would prove themselves capable of even further development. This would bring them into another class of technical men, that is to say, while not being particular experts in the handicraft of any one branch, they will have a good wide working knowledge of general engineering work with a specialised technical knowledge concerning one subject; in other words, they will form a class of supervising engineers of all branches and technical officers generally. The treatment of such students, of course, must be very different from that which can be given to subordinates. They should be given a sound general education until they are about fourteen years of age, and then they should be sent into the workshops where special provision should be made for training them. About three hours daily should be spent in teaching them general science, mathematics and drawing, and the rest of the day should be spent in acquiring a working knowledge of the handicrafts in the various departments. With this superior preliminary education, they should be able to assimilate knowledge much more quickly than the less educated boys. If they are of any use they would probably begin to indicate early some tendency in a particular direction, and when at the age of about nineteen or twenty they have gone through the various branches, it would probably be found that they could easily revert to the department for which they showed special aptitude. Again, if they proved themselves to be of good quality, their services would be sufficiently useful to the Department which would be glad to retain them as assistants.

I feel sure that the training as assistant with a parent firm where the youth is undertaking a responsible work under the guidance of experienced chiefs is of essential importance in building up the sense of responsibility and reliability and of initiative which is unfortunately so very often lacking in the college trained engineers, and I may say specially among Indians.

In these remarks, I have only considered the best species; the unfit would have to drop out by the way and fall into subordinate niches which are to be found all through the engineering world.

In order to accomplish my ideas, the ordinary technical school is of but very little use. It usually has a workshop attached to it wherein boys become second-rate amateurs as craftsmen and are without any useful training as engineers. I think that probably with the exception of one or two cases in India, the works are not of nearly sufficient amplitude to serve the purposes that I have indicated. If private enterprise by itself cannot see its way to expand sufficiently to justify the engagement of adequate skilled masters to serve as efficient instructors, I think that the State should enter into an agreement with some firms by giving them an educational allowance or otherwise, so as to enable them to expand their operations and to engage really suitable staffs for the purpose.

For example, there are many engineering firms of various sizes in India who have founderies, but I think that very few of them are equipped with a chemist or with suitable testing machinery for dealing with the materials that they use. With the Government grant, they might see their way to remedy these defects and to enable the students to

GAMLEN R. L.—*cont'd.*—Marwari Community, Calcutta On behalf of the

learn the essential parts of the profession. I would not suggest that these departments act as laboratories, and that the apprentices should learn in them, as ordinary students do, but that the apprentices should be working parts of the undertakings and carry out the daily routine for the firm. If no suitable arrangement could be made with a firm, then the old ideas should be completely departed from and the State itself should enter into commercial competition with private enterprise and construct a really comprehensive system of workshops of as diverse kinds as possible, in the first instance of course for supplying articles needed for the State and then also for general commercial consumption, and equip them with talent which could make them model factories. At the same time their primary object would be the making of engineers, including in this term all grades from the lowliest craftsman to the most highly skilled technician. I do not believe that a highly skilled specialist is made by giving facilities in a technical college; the high skill comes later and is due to the interest that the individual has in his own special work which forces him to search round to acquire the final polish. Special foreign scholarships given to fairly mature youths would enable the suitable ones to acquire this final polish. Unfortunately, at present, the industries in India do not provide any such facilities.

The expansion of our present undertaking, to the extent indicated, is what I would wish for here.

Marwari Community, Calcutta. On behalf of the,

It is generally believed, and on good grounds, that there is a need for a sound system of commercial education, both advanced and elementary. The need for such education at an early stage is keenly felt by the Marwari community on account of its traditions of early initiation into business. The community believes from its own experience that an early saturation of its youth in business methods and ideas is eminently desirable. Once provision is made for a matriculation course in commerce we expect that a sufficient number of students will take it up, and after the experimental stage is over, a large number of students may be expected to adopt that course. The Shri Vishuddhanand Saraswati Vidyalaya, the premier Marwari educational institution in Calcutta, has from time to time announced its aim to impart commercial education, and we hope that the University will help it to realise that aim by providing a matriculation course as well as higher courses in commerce. Students usually desire the recognition of their studies by university certificates, diplomas and degrees, and to start with an experiment should be made in the matriculation stage. Besides, in the absence of a real beginning of practical commercial training at school, many students are made to give up their studies, for their guardians do not consider the present literary curriculum as suitable to their needs.

If, however, there be a matriculation course in commerce it is expected that it will attract more Marwari students and that they will study for a longer period than at present. It is likely that the existing Marwari schools will take up the course and more such schools may be opened. The best way to introduce education in general among commercial communities would be through a course of commercial education.

The matriculation course in commerce may be arranged to cover the following subjects:—

(*a*) English (including précis writing and commercial correspondence. Marwari commercial men are naturally in great need of these arts, but their present arrangements are very defective indeed).

(*b*) Vernacular and a classical language. (At least a rudimentary knowledge of Sanskrit is necessary to make the education of a Hindu complete. Without it the students would find much inconvenience in their daily life: and a good knowledge of Hindi, which is essential, is difficult to acquire without an elementary knowledge of Sanskrit. Corresponding provision should be made for non-Hindus.)

(*c*) Book-keeping. (This subject is, of course, the foundation of all commercial training; and the Marwari boys, as has been shown by experience, have an aptitude for it fairly early in life.)

Marwari Community, Calcutta. On behalf of the,—*contd.*

(*d*) Mathematics. (A training in business mathematics should be given.)
(*e*) History and geography, both ordinary and commercial. (History may be very elementary and confined to the history of India and a brief survey of the history of England. Commercial geography should, for obvious reasons, occupy an important place : moreover, it is an excellent introduction to the science of economics.)

As regards teachers, we do not think there will be much difficulty in finding them so far as the above course is concerned. We understand that easy text-books too can be had without any difficulty.

The Honourable Justice Sir ASUTOSH CHAUDHURI.
Sir KAILAS C. BOSE, Rai Bahadur
J. C. COYAJEE.
DEBI PRASAD KHAITAN.
SETH RAGHUNATH PRASAD PODDAR.
TARACHAND GHANSHYAMDASS.
JAINARAIN RAMCHUNDER.
GANPUTRAI KHEMKA.
SADASOOKH GAMBIRCHAND.
HARKISSEN BHATTAR.
GULABRAY PODDAR.

A matriculation course in commerce will form the best stepping stone for those entering the portals of a college of commerce. At the same time, the school will have a value independent of any college, because a student of such a school, even if he does not prosecute his studies further, will enter commercial life with a better training than any which the present matriculation course can give him.

If the above suggestion be found difficult to adopt in the above form at present, we propose that optional subjects may be so arranged as to include the above requirements.

Rai Bahadur HARIRAM GOENKA.
Rai Bahadur SHEWPERSHAD JHOONJHOONWALLA.
KALI PRASAD KAITAN.
SHEOBUX MAL.
MUTTRUMULL CHOWDHURY.
KADARNATH RAJGARHIA.
RAM DEV CHOKHANY.
JUGALKISHORE SURAJMULL.
NATHURAM RAMKISSEN.
SRIGOPAL BILASRAY.
LALCHAND SEWCURN.
JAGANNATH.
BILASIRAM THAKURSIDAS.
Kumar HEERALAL BAGLA.
SEWARAM KALURAM.
BALDEODASS JUGALKISHORE.
BANSIDHUR SEWPRASAD.
SOBHARAM SEWDUTTRAY.
JAIDAYAL MADANGOPAL.

Marwari Community, Calcutta. On behalf of the,—*contd.*—PETAVEL, CAPTAIN J. W.

SEWRAMDAS RAMNIRANJANDAS.
RAMCHARANDAS DEBIDUTT.
RAMPRATAP RIDHCHURN.
HEERANAND ANANDRAM.
TRIBHUBAN HEERACHUND.
NIRMAL CH. CHUNDER.

PETAVEL, CAPTAIN J. W.

My suggestion for the solution of the problems of practical education and of middle class unemployment is for an extended application of the principle of which the French and Swiss *fermes écoles* give some example ; in those schools students are organised to produce the main necessaries of life on a co-operative plan, and so approach to being self-supporting. Broadly speaking, with the help of modern methods, we can produce most things easily enough, the difficulty in commerce being the disposal of produce. Young workers producing articles to use and consume themselves, have the easy part of the work altogether avoiding the difficult.

I do not propose to put anything speculative before the Commission, so shall come soon to a description of what I am actually engaged in doing now, and of what I wish to do as the very next step ; but I shall first just outline briefly what we are looking to for the future, referring to the various publications of the Educational Colonies Association for details. They can be had in England from the Honorary Secretary, J. B. Pennington, Esq., I.C.S., retired, 3, Victoria Street, Westminster, S. W. and in India from myself.

By means then of what in its *economic* working would be a co-operative organisation we look to establishing an educational system that would make young men practically sure of a living. Briefly the plan is to give boys at school and young men at college the widest possible facilities to learn to take a part suitable to young men of education in the work of producing the principal necessaries of life with the help of modern methods. We should hope to see this practical training made compulsory some day for all science degrees. In that way the universities could help enormously the industrial development of the country.

I contemplate as soon as possible " industrial colonies " equipped in the most modern style so that an extensive use would be made of machinery to which the boys and young men would go in some sort of rotation to learn to work practically, the rougher work being done by working class lads who would come to the farms for some schooling, the establishments thus serving two highly useful purposes.

Farming and all the industries connected with agriculture, including the repair and even, when possible, the manufacturing of the machinery, should be carried on at these establishments. The Indian middle-class young men are not averse to working a machine, and their prejudices could be overcome sufficiently for them to help in at least some kinds of field work during the time when labour is urgently needed on the farms and highly paid.

Basing ourselves on Swiss experience there is no doubt whatever that, with good organisation on a large scale, not only could those industrial educational establishments soon be self-supporting, but the young men would be able, even whilst pursuing their studies, to make useful contributions in kind to their homes. The fact that is very significant in this connection is that the Swiss have made tramps and vagrants entirely self-supporting by organising them to produce the necessaries of life in this way ; so we should certainly be able to succeed with good boys.

Now as there are in India millions of poor lads wanting education, once a start was made there is every reason to expect that organisations of that kind would extend rapidly ; and then they would soon afford, besides, opportunities for training for middle class young men, a very great amount of employment for them, and let it be noted, not only for those who could be employed in managing industrial work, but also for numbers whose education had been purely literary, who would be needed to teach the working class lads.

PETAVEL, CAPTAIN J. W.—*contd.*

I will not dwell on this, however, but will just mention in passing that in the opinion of many people the solution of India's problem of popular education is to be looked for in establishments of this kind. Boys working in them, helped by modern methods would earn by a few hours' work the equivalent of what they are expected to contribute to their homes and have time to devote to education. It would be enough to have an establishment in every district that boys would go to when old enough, doing their ordinary schooling and some small industrial work in village schools.

Though I shall come as soon as possible to a description of what I am actually doing, I think it worth while to say something about the economics of self-supporting technical education, because once it is proved possible the problems of practical education and middle class employment will be solved.

Hitherto we have looked upon combined earning and training as impossible, because a person must be quite differently employed to earn from what he professes to learn. To earn he must keep to some kind of work until he is proficient, and then continue it. To learn, on the other hand, when he has obtained some degree of proficiency in one kind of work, he must acquire proficiency in another.

But industrial progress has now rendered the combination of the two possible. In that lies a great hope for the Indian middle classes. In the first place it has made labour enormously productive when doing things on a large scale, so that the young men, by working a few hours a day commercially, would be able to earn their maintenance and devote another part of the day to working instructionally. Then, by introducing mechanical process into agriculture, it has rendered possible an industrial organisation in which the young men could produce the necessaries of life for themselves, which would enable them to have the benefit of this productive power, which a commercial organisation cannot give them.

These organisations could contain, besides the students, a considerable number of *working men hired under ordinary conditions*, who would produce much more than they would consume. In commercial phraseology the organisation would make a profit on their labour. All the young men would be practically partners in an organisation of that kind, hired labour therefore could be very effectively supervised and *the economic strength of such an organisation on the co-operative principle could therefore be increased practically to any extent, by increasing the proportions of workers hired at a fixed rate of remuneration.* This is an important point. When we bear this in mind we see the answer to many questions that arise, including the great question of capitalising these organisations. They would be able to pay interest on the money spent on buying machinery and other equipment which is all that capitalising them would mean.

We should not of course contemplate these organisations producing more than the most ordinary necessaries of life, so they would have to sell some produce to have the money to purchase many things they cannot produce and to pay the cash portions of salaries of permanent workers. Broadly speaking, however, they would produce those articles of which we make the greatest use.

Once more I shall come as quickly as possible to describing the stepping stones, I am actually engaged in placing, to help forward towards the realisation of these possibilities industrial progress has opened up ; but as they are possibilities of such very bright hope for India and for every country, I shall first give just one practical illustration showing the advantage of producing for use, instead of for sale, and showing clearly what we can look forward to at once if we place well chosen stepping stones

The ordinary industry, as we know too well, loses in friction the immense power industrial progress has given to labour, so that the workers scarcely benefit by it ; but there is one example from ordinary commerce that gives us an idea of what we might expect of educational establishments on the principle of which the French and Swiss *fermes écoles* give some little illustration. We have seen industries, having large orders to deal with, paying their workers at double, and in some instances more than double, ordinary rates for an output exceeding the normal and ordinary. Those rates show us what remuneration industries can give, and still be working at a profit with the help of modern methods.

But the reason for their not being able to pay those high rates generally is that an organisation producing for commerce has much more than its working expenses to pay ; it has to spend money on opening up markets ; it is practically certain to have some

PETAVEL, CAPTAIN J. W.—*contd.*

unfortunate transaction involving loss which must be paid for out of the profitable ones ; it has risks to incur. If conditions are particularly unfavourable it will probably be burdened with watered stock. In any case it will have very big salaries to pay to managers skilled in the arts of industrial warfare. But the organisation producing for its own workers has none of these expenses and risks and the higher rate, therefore, represents more accurately that at which it should be able to remunerate its workers. *This does not show all the advantages of the industry working co-operatively over the commercial industry, but* it does sufficiently perhaps for our purpose.

For all those reasons, and allowing further that a man in half a day's work can do considerably more than half of what he does in a whole day, we can see at once how, in a large organisation, the trained young men might earn quite a decent maintenance with half a day's work, and devote the other half to some further training. We see also how these organisations might develope and do most valuable work at least in training working class lads as skilled artisans giving us self-supporting technical schools if not solving the whole problem of popular education ; and giving abundant employment for men of education.

In a technical school of that kind young men would perhaps be longer going through a given course of training, but that would not matter if they were earning all the time, and they would have far more thorough and useful experience than they could ever have in any technical schools such as we have now, which are almost a pronounced failure. They would be turned gradually from school boys into practical workers, and then young supervisors of the junior lads, so would have a training such as is not to be had under present conditions. We could contemplate, as a further step, young men, when they were trained, taking up some industrial work on their own account, but directly connected with the organisation so that they could wean themselves as it were gradually from it, having the advantages of the advice and assistance of its experts in their first independent undertakings.

That is enough to say about the ultimate object we have in view, except just to add that we shall be able to go a very substantial way towards realising it if only we can manage to do successfully with working class lads what the Swiss have done with tramps and vagrants, and I refer to some prints enclosed for opinions of eminent economists and educationalists on these suggestions from the economic point of view.

I will now describe what I am doing towards establishing practical education and placing stepping stones to lead towards the realisation of what I have described above.

By the generosity of the Maharajah of Kasimbazar I have been able to open a school in which we are carrying out the idea of combined scholastic and industrial work. The Education Department has seen the importance of what we are doing and has offered financial assistance. His Excellency the Governor and Lady Ronaldshay have paid us the compliment of a visit to the school. Sir Asutosh Mookerjee is giving every encouragment.

As I have mentioned, economic success can be attained only when doing things on a large scale, so we have not yet made the industrial work pay to a very great extent, but some boys have been able already to earn rather more than their school fee by their work in the carpentry workshops.

The great thing, however, is to open up prospects for boys trained in the school, therefore, besides the school I am establishing an organisation to which I have given the name of Indian Polytechnic Association. Several very prominent gentlemen have helped me including notably Sir Dorab Tata, Sir Dinshaw Wacha, Rajah Reshee Case Law, Sir Rajendra Nath Mookerjee, Sir Kailas C. Bose, Mr. Banerjee (the grandson of Bankim Babu), Mr. Gokulchand Boral and many leading merchants among whom Messrs. Jettaibhai Jaichand, Haridas Goculdas and Mr. Khe Za Rhee may be mentioned.

The Indian Polytechnic Association is intended to be a general agency that will canvas for orders of all kinds, specially among people who wish to help the objects we are working for, and to get work to be executed as far as possible in the school workshops.

We cannot look forward to much success until we have an organisation of that kind in working order, as production for the use of the young producers themselves will not be possible at first.

I append a statement of the various objects of the Association. The most important work I am hoping now to do with its help is the establishment of what I call an industrial colony, to give the young men a practical example of what industrial training will lead

PETAVEL, CAPTAIN J. W.—*contd.*

them to. We have prejudices against industrial work to overcome, and young men will certainly not be induced, merely by being told about hopeful prospects, to overcome their prejudices against it. They must be encouraged by concrete examples.

The question is how money is to be obtained for a start? There are numbers of Indian middle class young men who are quite willing to take up an industrial career and who have guardians willing to give them the capital for a start but who are deterred by the risks inseparable from ordinary industrial undertakings. They know that the chances are only too great of their little capital being lost.

An urgent need therefore—none hardly could be more urgent—is to choose a good locality combining as many advantages as possible for such young men to start in and let them start there together with experienced men to advise and instruct them, and, when requested by their parents, to report on the way they are using the opportunities they have. The Indian Polytechnic Association would seek for customers for them, but if Government would at first take some articles from such industrial colonies, on condition, of course, of their coming up to its requirements, I think success would be ensured. The young men would then be made sure of a small earning to cover their expenses and make a moderate living if they had any energy and capacity. But in the case of incompetent ones, the managers would warn the guardians and insist on such young men taking more capable ones as partners, or if the worst came to the worst the management would warn guardians who would be able to sell up the plant to some one else. In a colony of that kind the value of the plant should be easily realised so the capital would not be lost; though of course rules would be made preventing any premium being demanded on account of the special privileges.

It will be necessary to have small industries, because a great factory would not give young men any commercial training. But the management might undertake many kinds of big work dividing it among the various small industries in accordance with the modern principle of specialisation and division of production. But young men would be encouraged to make themselves independent of this support. A good plan, perhaps, would be for them to make arrangements which might be of the nature of partnerships with people in the towns engaged in small industries, working with them and doing that part of the work which could be more economically done in the industrial colonies; an arrangement that could obviously be profitable to both parties. Another reason for having industrial colonies near the towns would be to avoid taking the young men away from the homes, which is important in India.

After a certain time in an industrial colony, under tutelage and guidance, the young men would, if their guardians were satisfied, be able to sell up their industry to another beginner, and make a start wherever they thought they stood the best chance of doing well. The colony experts could advantageously be retired technicists of various kinds and pensioners who would be glad to do the patriotic work of looking after the young men for a moderate remuneration.

What I have said in the appended paper about the Indian Polytechnic Association will show the various other possibilities of such an organisation. I will just add that my experience seems to show that, as with almost everything else in India, it would be immensely helped if Government were to give some direct and practical encouragement.

A condition could be made that young men should be taken to learn and earn on the industries, on the plan I have just described. *Then the Industrial colonies would become self-supporting technical schools established at the expense of the pupils*, brought into existence by organising interests and the Government giving its custom. The agricultural part might develope at first, or might not, but once a start is made in any way further development could be expected. It is evident of what great use colonies might be as nurseries of new industries. We should have in them the ideal conditions to make the first trials and it would of course be the best for the young men to learn industrial work that is going to be in demand. It seems clear also that established industries would in some cases remove to these colonies without asking for any special privileges, and would afford facilities for young men for earning or learning. There are evidently immense possibilities for industrial colonies in a country like India that is beginning to develope its industries. Again, I am able to refer to what Indian leading men have said about these suggestions.

PETAVEL, CAPTAIN J. W.—*contd.*

In conclusion, therefore, I would point out that what the Swiss and French have done, specially the Swiss, in the very striking success of their labour colony of Witzwil, seems to show that there is a solution for the whole problem of establishing a system of practical education that would assure young men a livelihood. I will repeat, because it is important that there is no need whatever to contemplate all the young men taking this industrial training. A portion taking it would be sufficient to render education establishments possible which would offer a vast amount of employment also for those whose education had been entirely literary; and this practical training might quite reasonably be made compulsory for all candidates for science degrees.

I urge therefore that the universities might, in that way, make a contribution that might prove to be of immense importance towards solving the problems of middle class unemployment and industrial development in India.

I point out further that some steps have been taken by the Maharajah of Kasimbazar in which Their Excellencies the Governor of Bengal and Lady Ronaldshay have shown an interest, and, as I have also mentioned, I have in the same way reasons to be thankful to Sir Asutosh Mookerjee, the Director of Public Instruction and the Presidency Inspector of Schools, and many leading gentlemen.

No financial obstacle stands in the way of the next step I propose. It is a matter, not of providing money, but merely of organising, and of developing the idea of the Indian Polytechnic Association. It is the question of utilising existing forces in an organised way to start industrial colonies, as I term them, that would meet a very great need. I have done what is in my power by initiating the ideas of the Indian Polytechnic Association with a degree of general interest and approval which seems to make it clear that with Government help we could ensure the establishment of *industrial colonies* and then we should see practically what developments would follow from these steps, simple and obviously useful in themselves.

APPENDIX.

To relieve unemployment among the middle classes by opening up industrial careers for young men, the first need is to give them a really practical training such as they can have only in an organisation working commercially, well equipped, paying them for their labour, and affording them the opportunities to acquire business knowledge without which technical knowledge alone may be of little practical use.

With respect to this I would refer specially to the evidence given before the Industries Commission that the present kind of industrial school is a failure.

The first step therefore is to have an organisation canvassing for orders for all institutions giving young men training.

Besides training in school workshops young men must have opportunities to gain experience with firms. To secure them such opportunities we need an organisation of the kind mentioned, so that by having orders to place out influence could be obtained over firms who will in turn take in apprentices.

Such an organisation is further needed to assist young men to earn their living when trained.

Many with the most modest capacity could make a living by some small industry established in a place where living and labour is cheap, provided there was an organisation to advise and instruct them as to what to produce, and to take their produce and dispose of it in the commercial centres.

Other young men, more ambitious, would want to work as engineers and to undertake contracts. But many people, who would be glad enough to give them opportunities dare not try the experiment because of the grave consequences that might be entailed by inexperience. But if there was an organisation to which people could entrust the work, and that would send with the young men, older ones of experience (they could be pensioned engineers or subordinates who would be glad to help their young countrymen for very modest remuneration) to see to matters of practical detail, talented and energetic young men could be given a chance.

Again such an organisation of technicists would be able to give most valuable help to anyone desiring to establish any small industries, by advising them and by giving them the kind of technical help they needed, and by having a number of trained men on its books so that it will not be necessary to depend entirely on one man, this is often a fatal weakness with small industries just starting.

Such an organisation, therefore, is what is wanted to employ Indian talent to develope the resources of India which is the ultimate aim.

Probably one of the most useful things we could do now would be to form industrial colonies in which young men starting small industries would be able to establish themselves, enjoying every possible advantage, and having technical assistance and commercial advisors. Under those conditions many guardians would finance young men for a start, who under present conditions would have only too good a reason to fear that the money would be wasted.

The Indian Polytechnic Association if properly supported could bring such colonies into existence.

ROY, MUNINDRANATH.

What is needed is the starting not so much of technological branches of a higher nature as of technical and industrial institutions to teach various crafts and small industries to thousands of students in secondary schools who are neither fit by nature nor intellect for a general course of study, and who are otherwise left alone as worthless and thrown into the midst of undesirable circles, merely because they cannot find anything to learn.

From the seventh class in the high English schools upwards there should be technical and industrial classes opened, separated from ordinary school courses, to train young men who have an aptitude for learning some industry or craft. These schools may at first be started in district towns, as Government schools.

SEN, GIRINDRA KUMAR.

Taking the goal to be the development of "a commercial frame of mind", referred to in my answers submitted to the Commission, I may explain how I may aim at this. The students in the first place should be made to realise, in the words of Walter Bagehot (*Lombard Street*), that "Business is really a profession, often requiring for its practice as much knowledge, and quite as much skill as law and medicine"; that it demands to-day the best brain power in the world; that it is full of intellectual interest and that they will be confronted with a series of problems of policy which cannot be anticipated beforehand, but which will require their right decision when they arise and that the University, not so much by constructing a curriculum,* as by the proper selection of teachers will try its best to awaken and guide their business sense, or, in other words, would try to create in them a commercial frame of mind enabling them to grasp the unforeseen situation and to give such consideration to the problems as in all probability would result in success.

As for the curriculum, I would consult those of other universities before suggesting one that is most likely to be useful and suitable for the young men of Bengal. In any case, I would first give them a general introduction to the subject, somewhat on the lines shown in my article on "Commercial Education" which appeared in the November series of the *Bengal Educational Journal* of 1913. I shall then divide the mercantile persons into different groups and take up the general work done by each in Calcutta and

* "There is no *one* quite obviously right way of constructing the curriculum of a commercial faculty. Everything depends on the personality of the teachers and on what they make the several courses to mean, rather than on the names that are given to the courses or even the syllabus of contents. There are almost as many possible ways of constructing a commercial curriculum as there are, according to Mr. Kipling, of constructing tribal lays, and it is as true of them, worked in the proper spirit, as of tribal lays that 'every single one of them is right.' But the proper spirit is essential; and that is the spirit which constantly remembers that the goal is the power of business judgment."

(Prof. W. J. Ashley, *Modern Commercial Education.*)

the relation of each to other different trades, if necessary. While doing this in the first year, I shall see that they take kindly to commercial and applied geography and begin with the question "why Calcutta will remain the premier city of India"; for, in solving that, the students will be at once introduced to the industries of Bengal, *viz.*, jute, coal, the new promising iron industry and so forth, the freight, the return cargo for steamers bringing the imports, the particular seasons of exports and of the power of purchase of the people for anticipating the import, the railway transport and other allied subjects. I should not be misunderstood as supplying them with any details of statistics so soon, but I will only give them the totals to realise the amount of paper money created during such particular seasons in proportion to the currency available. I shall proceed to give the students a little sketch of the history of trade and manufactures after an interest was aroused in them, and, before they were given an outline account of the business situation of the different countries trading with India, I shall ground them in the theory of international trade, but always proceeding with it, to quote Professor Ashley, "undogmatically." The students should now be made to think out for themselves the *causes* why Lancashire is manufacturing cloth, and so forth. This year they should also acquire such knowledge of accounts as every business man ought to possess.

In the second year, transport and freight which had only been casually mentioned in the first year will be taken up a little before, or side by side with, the work of the managing agents of concerns located in Bengal—from the creation of these up to "the financing and outside marketing, etc.", of jute and other important articles of export, with the help of prospectuses, reports and transactions given in outline, enabling the students to appreciate, not only the exact relation which one item bears to another, but also the place of each in the completed whole. In illustrating business technique, I would require each student to be in turn a buyer, a seller, a shipping agent or as representing an insurance company, or a banker as the case may be. While going on with this work, I would explain to them the exchange of wealth presented in a practical manner and how firms with established credit need not limit the range of their business within the figure of their capital. The students will now be made to realise that the export trade of a country is financed by bills of exchange. In this course of business policy, taking into account the trade of Calcutta as a port, I would lay special stress on the Stock Exchange and financial operations, on banking and on the produce markets, besides the management of shipping business. I would also have the seminar system to let students work up business subjects, especially those that are of importance to India and particularly to Bengal, providing them with materials like statistical works, reports of consuls and so forth.

I have written this draft memorandum not with a view to suggest how to prepare a curriculum, but to save the valuable time of the Commission, while suggesting how, in my opinion, a university type of training can be provided for our young men.

Oral Evidence.

BENGAL CHAMBER OF COMMERCE

Representatives.

CAMERON, ALASTAIR, and CRUM, W.E.

15th February 1918.

Management of European firms.—The responsible managers and assistants in European firms in Calcutta are almost entirely Europeans. A large number of officers are therefore imported from Europe

2. *Employment of Bengalis.*—Bengalis are employed mostly as clerks.

3. *Conditions of appointment and employment.*—A clerk is usually required to have passed the matriculation examination. Some firms hold a supplementary but very

informal, examination in English and arithmetic. The standard of handwriting is fairly good. Men so recruited start on a salary of about Rs. 25 or Rs. 30 a month and may rise to about Rs. 300 a month. A few may receive even more. Some Indians receive as much as Rs. 1,000 a month in Mr Cameron's employ.

4. *Improved educational qualifications.*—Men with better educational qualifications rarely apply for posts in offices. They object to doing the drudgery work, but it is essential for all to start at the bottom and learn gradually the whole work of the establishment. Graduates in commerce who wish to start on Rs. 300 a month will be of no value and will not obtain employment. A good university education, however, should enable a man who starts at the bottom to obtain speedy promotion. Mr. Crum saw great benefits to be derived in the long run from a good general university education.

5. *Facilities for practical training.*—Both witnesses considered it very unlikely that firms will give facilities for the practical training of university graduates in commerce. Such a practice would be very inconvenient to the offices. Business offices would also find it inconvenient to release their clerks early from office to attend evening classes. The witnesses did not consider either that the University should delay awarding a degree in commerce until the student had completed satisfactorily a year's course of practical training under a firm. A man cannot learn much about business in a year; and heads of firms would be placed in a somewhat invidious position.

6. *Secondary education.*—The witnesses approved the idea of concentrating at present on a comparatively few institutions in which boys of about fifteen could be given a three years' training in subjects suitable for business-career, and especially in colloquial and written English and in mathematics. A really good schooling rarely makes any difference in the initial salary, but it usually makes all the difference in the pace of promotion.

7. *Training in England.*—Neither witness had much experience of the State technical scholars, but Mr. Crum related a somewhat doleful experience of a young Muhammadan of this type.

Note on University Commercial Training by Mr. Crum.

I think that it is possible that some of my evidence regarding the value of university training may be somewhat misleading, and I wish to add a little to what I said.

University training is not to my mind important solely for the academic learning which is imparted.

While not in any way decrying the value of the academic education, I lay far greater stress on the value of university life from the point of view of discipline, association with boys of the same age and the inculcation of a spirit of work and play together for the common good and at the same time of independence which cannot be learned at school.

What we require above all things is a residential university away from the temptations of Calcutta, and without this I do not see how the moral training necessary can be brought about.

Give me the same type of boy at eighteen without university education and at twenty-two with a good university education, and provided the latter is willing to begin at the bottom, I am certain that at the age of twenty-seven the university boy will, in the majority of cases, be drawing far the higher salary.

As regards State scholarships, I think these should include plenty of practical work, and should not be confined to study at one of the universities, but perhaps this is already included.

Generally, I am sure that reforms in education in Bengal should be directed towards the moulding of character more than solely towards the impartation of learning for examinations which later become a standard for Government service.

NEWSON, P. W.

25th February 1918.

Development of commerce.—The witness was very hopeful about the prospects of Indian commerce. The present situation is more satisfactory than it has ever been in the past. Owing to the war and its effect upon European recruitment it is probable that India will have to rely more upon Indian agency in the higher grades of employment.

NEWSON, P. W.—*contd.*

2 *Clerks*.—The witness had nothing but praise for the Indian clerks in his service, except that their knowledge of the English language is very deficient. Clerks are recruited in a somewhat haphazard way and usually by the head clerks and also by advertisement in the daily papers. The average pay is about Rs. 60 or Rs. 70; and the maximum pay in the office is Rs. 350. For the clerical posts witness would prefer a boy of about seventeen or eighteen who had received a good schooling, and especially in English, than a university graduate. He was strongly in favour of evening classes and thought that arrangements could easily be made for attendance at these classes.

3. *Higher commercial education*.—The prospects of those who receive a higher education in commerce are not promising. The witness was not a great believer in commercial education; and he was also very doubtful whether a university education was of great value in business. Regarding the former witness felt that business can only be learnt effectively in the school of experience, and that his firm in making an appointment would not consider a university training in commerce any recommendation. Regarding the latter he admitted that there was a difference of opinion between business people. His own firm did not employ university men, European or Indian. He admitted, however, that a good education probably paid in the long run.

4. *The mills*.—The witness suggested that there was much more scope for Indians in the mills than in the office. Witness would welcome the training of Indians for these posts. On behalf of his firm he offered to give facilities for practical training in his mills to eight apprentices a year. The apprentices would receive a living wage and should have received, if possible, a good school training.

III. ENGINEERING AND ARCHITECTURE.

General Memoranda.

Civil Engineering College, Sibpur.

There is little doubt that provision must be made in India for a considerable extension of the facilities provided for the education of engineers and others employed in industry.

This has become more evident during the war which has shown how very dependent India is upon England and other countries for the essential requirements of such industries as she now possesses; and how very essential for the political and material well-being of the country it is that Indian industries shall be developed and that she shall be made more self-supporting.

2. The necessity of fitting Indians and Anglo-Indians resident in India to take their due share in such development does not need discussion, but the present urgency of the problem may fairly be put forward, and it is this.

India has been relying for many years upon importing trained engineers from Great Britain for many of her industries. Since the war began this supply has been cut off and the industries have been deprived of their recruits. There has, moreover, been an ever increasing demand by the military authorities upon Indian industrial concerns for the best and most capable of the assistants still left, for service in the army or in Mesopotamia and East Africa. At the same time it has been necessary to try to expand Indian industries, with their depleted staff, to meet increasing military and industrial demands.

3. After the war it is practically certain that those men who might otherwise have come to India will be needed in Great Britain in connection with the industrial revival that is sure to follow and the repair of the ravages of war, and to open up in new directions.

Only those with Indian traditions or connections will be willing to make the sacrifice that foreign residence entails, when they will be able to get as good terms financially in their home country; therefore it is not likely that Europeans will be available on the old terms. Moreover, European technical institutions have been practically empty since the war began and the supply of scientifically trained men will be smaller. Those that are available in Great Britain and upon whom she will have to rely to a great extent will be those who have learnt in the hurly-burly of munition manufacture and will have experience mainly in a narrow groove.

The problem is therefore a very urgent commercial problem. The industries need the men and need them badly. They are perfectly willing and anxious to engage competent men quite irrespective of their nationality. A competent Indian who can live on a lower scale of pay than a European will have a great advantage.

4. We must therefore forge ahead, and that without delay, and we must leave no stone unturned to see that the proposals for development that we put forward are absolutely sound. Industries must be run upon business lines if they are going to succeed. An incompetent man, be he engineer, assistant or foreman, when found out is fired out as soon as possible, often being replaced by the more expensive European in spite of the greater cost. No industry can afford to retain an incompetent man. Especially is this true when the industry has to face world-wide competition, and a competition that will become keener and keener after the war. We should also note that, because the Bengali is not industrially inclined, it is America and Japan who have taken advantage of the present opportunity to exploit India. This competition with those very keen and clever nations has come to stay.

5. We must try to attract to our industries the most likely youths of the country and make it clear that engineering and industrial enterprise are not refuges for the incompetent.

Civil Engineering College, Sibpur—*contd.*

6. The industries of the country need two distinct types of engineers.

(*a*) *The practical supervisor or clerk of works.* In England and Europe the latter often rises from the ranks of the workers. In India the workers have not sufficient education to be suitable material to train for such posts and we have to attempt to train them in schools and colleges. A few successful sirdars and contractors have risen from the *mistry* or workman class. The attempt to make a clerk of the works out of a Bengali student is not always successful, they don't like the constant attendance the supervision of labour involves and are apt to neglect this all-important work and to try to supervise outdoor work from their office table. The system of education in force in schools is more suited for producing thinkers and dreamers than workers.

(*b*) *The scientifically trained engineer and manager*, such as are turned out by a degree or an advanced diploma course.

7. The preliminary education of the former class before they are recruited to technical institutions or workshops is of great importance.

We cannot afford to hamper our expensive technical institutions with elementary work that ought to be taught, and taught well, at schools. The schools must do their proper work efficiently. We need boys well grounded in arithmetic, geometry, drawing and with some elementary knowledge of the laws of natural science. They should also know English (colloquial and journalistic) well enough to be able to understand and absorb newspaper articles and text-books. Technical jargon they cannot learn at school.

Manual training is an important school subject, as giving boys an opportunity of discovering any natural bent they may have towards constructive work and assists in finding out those more likely to become useful Engineers.

8. At present there are only two examination tests for lads on the completion of their school education, namely, the matriculation and the school final examination of the B. classes (called the B. Final for short). The number of candidates at the matriculation are numbered by thousands and at the school final by tens. 11,250 candidates passed the last matriculation and 32 passed the last school final.

9. The matriculation examination as conducted on its present narrow lines, is an unsuitable test for admission to an engineering college or to a technical school, it ignores in a lofty way all subjects of use to those wishing to follow an industrial career. It has no test in natural science or in drawing and the English encouraged by it is unsuitable.

10. Bengali schools being practically cramming establishments for the matriculation examination, you will find that few, if any of them, present students in more than the minimum number of subjects required to pass. No breadth of intellect is encouraged and at no Bengali school, except those owned by Government, is any arrangement made for drawing or manual training. Boys are not kept at Bengali schools for further training after they have reached the matriculation standard, as is done at public schools in England.

11. Again the very immensity of the numbers appearing at the matriculation examination makes it very difficult to use it as a medium of selecting lads for admission to an engineering school. The delay in announcing the results of the examination amounts to about three months. Bengali students usually wait until they know of their success before applying for admission to the Engineering College. This news takes some time to filter to their distant homes, then there arrive shoals of applications for the prospectus and eventually applications for admission. If now a demand is made to know the subjects in which the applicants qualified at the matriculation and the marks they obtained, to enable a proper selection of students to be made, other great delays occur. The University office will supply these marks on payment of Rs. 2, but it takes a long time for one applicant (out of 11,000) to receive a certified copy.

12. This year the mere demand for a copy of the marks meant that no more was heard from the candidate wishing to join Sibpur, he found it impossible to obtain it and (two months after the commencement of the session) we were forced to make a further admission in order to get a full class, then lads were taken in irrespective of the subjects they had learnt and their suitability for an engineering or industrial career.

Civil Engineering College, Sibpur—*contd.*

13 *The B. final examination* was started with the special purpose of preparing lads for engineering and industrial careers.

The examination also qualifies a lad for admission to the Campbell and Dacca Medical schools, the Agricultural College, the Veterinary College and is recognised by Government as being equivalent to the Matriculation. The Syndicate will allow a B. Final lad to enter a college to take a science course if he passes the matriculation test in a classical language.

The subjects of the B. final examination are :—

(*a*) Modern English.
(*b*) A vernacular.
(*c*) Arithmetic and algebra.
(*d*) Geometry and mensuration
(*e*) Elementary science.
(*f*) Elementary surveying
(*g*) Elementary engineering.
(*h*) Drawing.
(*i*) Manual training.

14. To encourage lads to join the B. classes after passing the test for promotion to the second class of a high English school it has been the custom to promise them admission to the sub-overseer classes of this college and technical schools one year in advance of the matriculates. That is, they join the second year class and the matriculates the first year, so they can appear at the sub-overseer examination after one year while matriculates take two. This has been an unfortunate practice; it has tended to make school masters and school boys think that the B. final examination is solely for admission to engineering schools and also that it has some value as a test of engineering knowledge, which it decidedly has not.

Manual training is no real substitute for carpentry. Elementary engineering learnt as a text-book subject is of no value and the standard in drawing is not equivalent to what should be reached at the end of the first year of a technical course.

15. The result of this, in actual practice, is not encouraging. B. final lads do not do so well at engineering schools as matriculates, as the latter have to pass through our full course.

16. B. classes have been started only where there are technical schools teaching the sub-overseer course or where there are workshops. This was the case at Dacca, but now separate arrangements have been made. The boys are taught manual training, engineering, surveying, science, drawing at the technical schools (except at Dacca) and they are as much pupils of the technical schools as of the Zilla schools. Consequently, the B. classes have tended to become solely preparatory to the engineering schools and as such they are not a success.

17. The right thing to do now is to *organise the B. classes definitely as part of the Zilla schools*, to omit engineering as a subject, to retain surveying as an example of practical mensuration, useful in an agricultural country, and regarded only as such, and to try to develope the classes on a more generous basis as preparing lads for admission to the science courses of other colleges, besides the medical, agricultural, veterinary, surveying, industrial and engineering classes, *and to give lads that pass preferential admission over matriculates to the first year classes only.* It will not be difficult to do this in Government schools as those become equipped with facilities for teaching manual training. The supply of teachers should be no difficulty. The B. final examination would then occupy *its proper* place in the educational scheme.

18. The management of engineering schools and colleges will be easier, because the tendency to over-crowding in the higher classes by bringing in inferior lads direct to advanced standing will be avoided, this will improve the efficiency of the training given at the industrial and engineering schools.

19. The converse is that if we continue to admit B. final lads to the second year class of an engineering school and to prepare them for the sub-overseer examination in one year, we shall reduce the period of training at the engineering school from two years to one, with a certain loss in efficiency.

Civil Engineering College, Sibpur—*contd.*

20. These difficulties in regard to preparing and selecting lads for admission to engineering colleges do not occur in England. There every lad can readily obtain instruction in suitable subjects and practically any lad who wishes to become an engineer can do so by joining workshops or schools. Moreover, technical colleges are provided in othe countries by others besides Government. In Bengal Government is the only supporter.

21. The Government Civil Engineering College at Sibpur is the only technical institution of university rank in the Eastern Provinces and Burma. There are other Government institutions of a lower grade: Bankipur in Bihar and Orissa, Dacca in Bengal, Insein in Burma. *Any lad in this large area who wishes to study in India engineering of a university standard must come to Sibpur.* What are these four Government institutions amongst 100 million inhabitants? Perhaps the 18,000 candidates at matriculation is a fairer basis of comparison. If we consider inhabitants who have reached that standard of education the comparison is not so unfavourable and only becomes so when we realise that practically every one of these 18,000 candidates wants Government employment, whereas in England few matriculates hope for Government service, probably not one has that as his sole aim.

22. The existing facilities need to be supplemented considerably to meet the existing demands of the industries and there is little time to lose. It is mechanical engineers especially that are needed. Training takes time and, even if the facilities were expanded to-day, it will be from four to five years before our first fruits are on the market. How much more urgent is the reform of the schools whence we get out raw material for training.

23. The existing system of technical education in Bengal is as follows:—

A. *University Education.*—A course of training for the B. E. degree in civil engineering is offered at the Sibpur College.

Admission standard I.Sc.; length of course four years followed by one year of practical training

B. *College Diploma Courses.*—(This term represents these courses better than the name apprentice, permission has been asked to adopt this title.) There are the following courses:—

(*a*) Civil engineering (upper subordinate diploma)—see below.

(*b*) Mechanical and electrical engineering (diploma)—three-year course, followed by one year of practical training.

(*c*) Mining (diploma in the principles of mining)—three-year course.

(*a*) The Civil engineering course is under reconsideration; at present it consists of two standards:

(i) The lower subordinate standard.
(ii) The upper subordinate standard.

The former is a two-years' college or school course and the latter extends over three years, two at school or college and one on practical training. To obtain admission to the latter candidates must first qualify in the former.

(*b*) This course is recognised by the British Board of Trade as exempting diploma-holders from a certain period of the artificer training up to a maximum of two years required of candidates for a marine engineer's certificate of competency.

(*c*) This course is recognised by the Government of India as exempting diploma-holders from a certain period of work underground up to a maximum limit of two years required of candidates for a colliery manager's certificate of competency.

For various administrative and educational reasons it has become advisable to ask Government to separate these two courses and we hope to have an upper subordinate diploma course of three years followed by one on practical training, and a separate lower subordinate course of two years, to follow which practical training may be organised in the future, the better sub-overseers being allowed to proceed to the overseer course. This is in effect what was recommended in the report of the Calcutta Technological Institute who also advised that the institute should conduct its own examinations and grant its own diploma.

Civil Engineering College, Sibpur—*contd.*

These various diploma and other courses are offered as follows :—

Bengal	Civil Engineering College, Sibpur	(*a*) Upper subordinate diploma. (*b*) Mechanical and electrical engineering diploma. (*c*) Mining diploma.
Bihar and Orissa	School of Engineering, Dacca	Upper subordinate diploma.
	School of Engineering, Bankipur	Upper subordinate diploma.

The Lower Subordinate Course (Sub-Overseer).

Bengal	Civil Engineering College, Sibpur, this class failed to attract sufficient students in 1917. School of Engineering, Dacca. Technical School, Burdwan. Technical School, Pabna. Technical School, Rajshahi.
Bihar and Orissa	School of Engineering, Bankipur. Technical School, Ranchi.

The examinations, except the mining diploma, are entrusted to a special board, the *Joint Technical Examination Board.* The Bihar and Orissa schools will probably withdraw shortly from the Board and conduct their own examination.

C.—*Workshop apprentice courses.*—The large engineering workshops in Bengal all admit apprentices, those around Calcutta attend the Calcutta Technical Evening School for theoretical instruction, while the workshops of the railways have each their own arrangements.

A proposal has been drafted to connect these apprenticeship systems with the mechanical and electrical engineering diploma course of the Sibpur College.

D.—*Evening classes* in the colliery districts for mining assistants.

These are connected with the mining diploma classes of the Sibpur College.

24. It will thus be seen that all courses of technical education have their final objective at the Sibpur College and that the courses that have the closest and most important connection with industries are the mechanical and electrical engineering and mining diploma courses.

25. It will now be interesting to see the administration, educational and financial, of the college. This is very complex. There are three separate interested bodies each with different committees which have different functions (see Tables A and B appended), the latter shows clearly the composition of these three bodies and of their various committees, and incidentally of the possibility of expanding the Board of Visitors into a degree giving body fully representative of all interests concerned with engineering and technical education.

26. The present difficulties of administration when dealing with an outside examining body, like the Calcutta University, can best be understood if we follow the track that a proposal for the simplest change in the syllabus or scheme of examination has now to take. Let us assume that the principal is in charge of the proposal. The bodies that have to be consulted are as shown :—

The Principal must naturally first obtain the support of his colleagues, *i.e.*, (i) the *College Council of Professors.* He must discuss the matter with such members of (ii) the *Board of Visitors* as are interested and obtain their approval. Then if it is a matter that concerns the syllabus only of a university course he sends the scheme to (iii) *the Syndicate,* who refer it to (iv) the *Board of Studies in Engineering*; they return it to the Syndicate who send it to (v) the *Faculty of Engineering* who after considering it send it again to the Syndicate who consider the proposal and send it on modified or unmodified to (vi) the *Senate.* Here it may be modified or returned to the Syndicate for modification, but presuming that it is accepted, the Syndicate send it on to (vii) the *Government of India,* who may refer it back to (viii) the *Rector* if he has not already seen it. He after consulting his educational advisers returns it to the Government of India, when if there is any difference of opinion between the Rector and the Government of India, they may refer it back for the opinion of (ix) the *Governor of Bengal in Council.* He will communicate their opinion and send the case back to the Government of India who are the final sanctioning power as regards the syllabus. The Government of India now send the scheme back to the Syndicate. At some or all

Civil Engineering College, Sibpur—*contd.*

points in these wanderings the proposals are liable to modification. The scheme having arrived back at the Syndicate in its final form it is now returned to the college whose staff may not approve of the alterations received *en route*; they have to accept it and lastly the Prinicipal may, if the proposal involves any financial points, have to refer it to (x) his *Governing Body* and get their support in approaching (xi) the *Bengal Government* for funds.

27. The obstacles it will be observed are great and the time lost in obtaining sanction to any change is prodigious, even supposing that the file never gets mislaid on the way. The result is that one does not readily come forward with any proposals for improvement and that the courses of instruction are apt to get hopelessly behind date.

28. At a modern engineering college in Great Britain a professor has little difficulty in revising his courses and in some it is a matter of administrative routine to subject the courses to an annual scrutiny or revision. This leads to a healthy natural growth by gradual progression, modification, in contradistinction to periodical revolutionary changes.

29. The present B.E. courses were devised in 1906, they remain almost exactly as they were then, the only changes that have been made are as regards examinations—

(*a*) To ensure mathematics being studied from a proper standpoint the B.E. tests in mathematics have been changed—

from { (i) Pure mathematics / (ii) Mixed mathematics } to { (i) Theories / (ii) Applications }

This simple change took about eighteen months and was nearly thrown out at one point, without further reference to the college or the responsible professorial staff.

(*b*) To relieve the final year of the B.E. course of the teaching of mathematics and science, which should be finished at an earlier stage, and to relieve the students of some of the heavy load they have to bear (owing to the university examinations covering a two-year course), a change has been made enabling a portion of the I. E. examination to be anticipated at the end of the first year and disposed of, and the non-professional subjects to be disposed of in the penultimate year of the B.E. course.

30. For all practical purposes the connection with the University is disastrous and prevents the development of the college as a self-governing institution. Members of engineering and industrial firms (all very busy people and the future employers of our students) are effectively prevented from interesting themselves in the courses we teach and our arrangements for training and consequently in the type of lad we turn out and ask them to employ.

The University merely does the examining that we can arrange just as effectively ourselves. And as a matter of fact the college staff are now associated in the university examining work with outsiders appointed by the University, an external and an internal examiner being associated for each test, so that the connection with the University is quite unnecessary, we do half the work now. But, alas, they fix the passing percentages in each subject, and to change these, for what we consider reasonable and what our students can easily respond to, would be a very heavy task. Every Senator to whatever faculty he might belong would wish to be heard on such a matter and the small Engineering Faculty would be entirely swamped by outsiders who otherwise never show any interest in engineering education.

31. The practical value of the present connection with the University is merely one of "Window Dressing." We tell the public that we train for a university degree and this helps to attract students.

32. The periodical modification of the "Diploma" courses taught in the so-called Apprentice Department is somewhat simpler than in the case of the university course as described in paragraph 26.

Again supposing the principal to be in charge of the scheme.

He will first consult (i) *his Council* and prepare the scheme himself, then he will send it to the (ii) *Joint Technical Examination Board* who after considering it will, if they accept it, send it on to (iii) and (iv) the *Governments of Bengal* and *Bihar and Orissa* through

Civil Engineering College, Sibpur—*contd.*

(v), (vi) their respective *Directors of Public Instruction.* If acceptable, Government will refer back for financial details and finally reject or sanction the scheme, in the latter case they will send it back to the Joint Technical Examination Board who will communicate the sanction to the Principal. He will then ask his (vii) *Governing Body* for their support in obtaining what financial assistance is necessary from Government.

33. The Joint Technical Examination Board has practically done its work and its continued existence on its present lines is no longer necessary. Bihar and Orissa are comtemplating the withdrawal of their schools from the Board and of making separate provincial arrangements for the work now undertaken by the Board. I know this, because I was one of a committee appointed by the Bihar and Orissa Government to advise upon the development of their central institution, the Bihar School of Engineering. When this takes place the Board will have only Bengal schools to deal with, Government institutions, Sibpur and Dacca teaching the diploma courses, and district board schools, Burdwan, Pabna and Rajshahi, additional schools teaching the lower subordinate course.

34. Again the Board needs reconstitution to carry out properly even the work now entrusted to it as regards the diploma courses. Though it conducts examinations and arranges the courses of study in both mechanical and electrical engineering it has neither a practising mechanical nor a practising electrical engineer in its composition, whereas it has three practising civil engineers. The conduct of the examination for the diploma in the principles of mining and the arranging of the courses of study in mining are outside of its scope; these are done by the Principal and the Mining Educational Advisory Board so that the authority of the Joint Technical Examination Board over the diploma courses is not complete.

It has not been consulted in regard to the proposed affiliation of Railway and other workshops to the Civil Engineering College as regards the training of mechanical engineers nor is it likely to be consulted in regard to the development of mining education now under consideration.

35. In my opinion the Joint Technical Examination Board has survived its usefulness and its functions may be more profitably and efficiently carried out under the scheme propounded in paragraphs 39 and 40 below.

36. It is quite clear that the administration of the educational side of the college is very cumbrous. It is organised in such a way as to make it very difficult for any busy practising engineer to show any effective interest in the training of the young men who, on completion of their training, will hope to get employment from him. Under present circumstances it is not easy to enlist his sympathy and co-operation and these we must have. At a college we can't do much more than lay the scientific foundations of an engineer's training. The successful practice of engineering is the most important part of training of a complete engineer and for this we must rely on the co-operation of employers, and employers now are showing great interest in this matter.

37. In any scheme of re-organisation we must arrange so as to secure their active help and co-operation, this is of far greater importance to the country than the mere granting of degrees, while if the degree granting power could be assigned to a body mainly composed of engineers we shall have done our very best for the country and for the development of its industries. There should be formed in connection with engineering and industrial education, a body entirely independent of the Calcutta University empowered to arrange the courses of studies, conduct examinations and award diplomas and degrees.

38. The clientele of the Engineering College has little in common with other University interests. We look to railway and other workshops in Jamalpur, Kanchrapara, Khargpur, Lilooah, Sakchi and Calcutta for assistance in training mechanical engineers and to mines at Asansol, Jherriah, Giridih, etc., for assistance in training mining engineers. It is impossible to imagine a university taking any useful practical interest in the training of mechanics at a workshop institute and it is with such training that we hope to affiliate our mechanical engineering courses. Similarly a university situated in Calcutta cannot show any useful practical interest in the underground training of mining engineers and in local lectures in the coal fields. These latter feed our mining classes.

As regards the present connection with the University, namely, the training of civil engineers, the present college workshop courses demanded of assistant engineers are not

Civil Engineering College, Sibpur—*contd.*

recognised by the University. The Public Works Department prescribed these standards and they are taught at Sibpur over and above the university syllabus.

The practical training course again prescribed for a full college diploma of "Civil Engineer" that follows the B.E. degree is beyond the scope of university connection and though it forms the crown of the college course it is impossible to associate the University therewith. Again the University can take no active interest in the civil engineering courses for the training of sub-overseers and overseers or of their practical training courses.

These practical training courses are in India very important parts of the college courses and have to be arranged with contractors, railways, public works, district boards, etc., it is quite impossible for them to fall within the purview of the University.

In England, such practical training is provided by apprenticing lads to engineering firms after they have obtained their engineering degrees from the University which have no concern with such apprenticeship. In India things have not yet developed to this stage, the college has to arrange for the practical training of its degree and diploma holders and we give a *Diploma of Civil Engineer* of still higher professional value than the B.E. on the satisfactory completion of the practical training

39. Many engineering colleges in Germany that have no connection with universities grant engineering degrees of bachelor and up to doctor. A similar practice is found in America. A similar power may be entrusted to those controlling engineering education in Bengal. Such an arrangement was doubtless found necessary to provide for the proper development of engineering education in the closest touch with employers to enable those responsible to devote themselves whole-heartedly to it without other unconnected distraction.

40. An examination of Table (B), which shows the comparative compositions of College administrative bodies, the Joint Technical Examination Board, and the Faculty of Engineering will quickly demonstrate that so far as composition is concerned the Board of Visitors with its forty members is far more representative of the varied interests of the college than either the Joint Technical Examination Board or the Faculty of Engineering. The Board of Visitors is a strong body and with slight additions and modifications it is quite strong enough and representative enough to be entrusted with the full control of the courses of instruction and of the examinations and may well be given the power of granting degrees and diplomas. It needs representatives of mechanical engineering, electrical engineering, sanitary engineering, architecture and its functions to be carefully detailed.

41. *This enlarged Board of Visitors, or whatever future name may be given to such a body, should absorb the functions of the Faculty of Engineering and the Board of Studies in Engineering, also of the Joint Technical Examination Board, and it should be entrusted with the control of engineering and diploma courses throughout Bengal.* This may easily be arranged as the only institutions offering such courses are Government institutions, Sibpur and Dacca. The whole of the funds are provided by Government, and unlike arts, science, law and medical colleges, there are no other vested interests to consider.

42. Government could take the first step towards such a scheme by merely appointing a joint board of visitors for Sibpur and Dacca so far as the diploma courses are concerned, and absorbing in this the functions of the Joint Technical Examination Board.

This Board of Visitors would include *advisory boards* for *civil engineering, mechanical and electrical engineering* and *mining*, who would advise Government concerning the development of education in these branches throughout Bengal. From these advisory boards a *board of studies and examinations* would be framed. This will provide a means for the proper co-ordination of syllabuses, teaching arrangements and examinations, which is now lacking and will enable practising engineers and employers to be very closely associated with this important work.

43. These diploma courses may be developed to any extent and ultimately degrees may be granted, whenever the demand for more highly qualified men would justify the extra cost that would be involved and the Board of Visitors (or whatever it may be called) could be entrusted with the award of such degrees and could take over, either then or perferably from the very start, these powers now invested in the Calcutta University.

Civil Engineering College, Sibpur—*contd.*

44. The members of the governing bodies of the Sibpur College and the Dacca School of Engineering should be members of this Board of Visitors so that they should be thoroughly in touch with the development of technical education.

45. Just as medical education is under the Medical Department for Government administration, agricultural education under the Department of Agriculture and veterinary education under veterinary authorities so should technical and industrial education be under the Department of Industries.

It is difficult to exaggerate the importance of giving effect to this change which has become ever so much more evident since the war. Crowds and crowds of technically trained workers are needed by the military authorities and by the industries. The Indian Munitions Board appeal to the industries to spare their men and to take on others for training. They have not asked the Education Department to assist and the industrial training institutions are left in the cold. *If they had now been under the Department of Industries, that Department would have developed their training facilities to the utmost and they would have been of far greater use to the country.*

46. The military authorities need—

Structural engineers, surveyors, electricians, overseers, sub-overseers, draftsman, motor car mechanics, steam launch drivers, motor launch drivers, carpenters, blacksmiths, copper smiths, fitters, machinists, moulders, tin smiths, turners, electrical wiremen, engine drivers, etc., etc. The training of many is being improvised, and the experience gained in such training and the facilities and means of instruction will all be lost, unless technical and industrial education is at once taken over by the Department of Industries and that Department is associated with the training

47. The Indian Munitions Board has taken over the following industries: -

Army clothing.
Ordnance factories.
Tanning.
Bolt and nut making.

It is going to start—

Ship building.
Acetone manufacture.

In the more important of these, there are great facilities for the practical training of apprentices and if the Munitions Board now had the responsibility for technical education there is little doubt that it would push schemes of training as it must train workers for itself and for the Army Department who appeal to it for assistance in the same direction.

48. If only Government would determine on the retention of the College at Sibpur at once, we could proceed with development there, and increase our barrack and classroom accommodation and help to meet the situation. A grand and unique opportunity is passing by us.

49. The case for handing over the technical and industrial schools to the Department of Industries is exceedingly strong, and if there is any intention whatever of doing so, it should be done without delay. We should not wait till the war is over or we shall lose the present magnificent opportunities and the experience we might gain. It would be absurd to leave the college and the schools temporarily with the Department of Education; let them now be expanded on the lines they should follow in the future and under the fostering care of the Department of Industries.

Also it is very evident that all matters concerned with technological and industrial education should be entrusted to one single body entirely independent of the University. The training of engineers and the training of mechanics are so inextricably intermingled—the same facilities are needed for both—that we do not want to complicate administration by affiliating any college or school to an outside university. The University cannot take any active professional interest in the training of the supervisor class nor of the very large number of mechanics enumerated in paragraph 44 above, whose training is largely a workshop matter. *Employers are the connecting link, not the University.* Rather let employers who are vitally interested in the thorough training of their engineers, assistants and mechanics be entrusted with this education than the University.

Civil Engineering College, Sibpur—*contd.*

59. Bengal is not rich enough, or rather I should say Government is not rich enough, to multiply the institutions for training men of the various grades. They must be trained in a very limited number of colleges and schools. Do not therefore dissipate the energies of the administrators of those institutions by multiplying the outside educational bodies they have to deal with. Let technical and industrial education be self-contained.

51. Technical and industrial education is so vast and special a subject that it almost needs a separate commission of its own. It is sincerely to be trusted that employers of labour and manufactures will be consulted in regard to the future organisation and administration of technical and industrial education. They should have the deciding voice and if things are arranged to their satisfaction they will be the more ready to co-operate and to help with money. We cannot afford to ignore their opinions and wishes.

52. I (Mr. B. Heaton, the principal) have previously given evidence regarding various aspects of the work of this college and the development of technical and industrial education to the Royal Public Services Commission, the Indian Industrial Commission and the Public Works Re-organisation Commission. I trust that their recommendations may be given due consideration in determining the future of this college. The latter two commissions contained a number of engineering and industrial experts and examined a large number of expert engineering and business witnesses. The advice especially of the Indian Industrial Commission in regard to the association of engineering colleges with universities, especially with other faculties should have very great weight, as also the future administration by Government, whether through the Department of Public Instruction or the Department of Industries.

53. The report of a committee of the Governing Body of the Civil Engineering College regarding the training of mechanical engineers in Bengal is under the consideration of the Government of Bengal.

A further report by the same Committee regarding the development of the Mining Department at Sibpur will shortly be put before the Governing Body.

A report upon the condition of sub-overseer and overseer training classes in Bengal, 1915, also gives a lot of useful information.

54. With reference to the future of the Dacca School of Engineering, it is not likely that Government can staff and equip this school on the same scale as Sibpur. The only diploma course common to Sibpur that Dacca teaches is the upper subordinate diploma course. Dacca has no mechanical and electrical or mining classes, but even in this civil engineering course, neither the staff nor the equipment of Dacca is on the same scale as Sibpur. Dacca is further from the civil engineering activities of large cities, railways, ports and Government engineering administration.

Dacca is in the centre of what is pre-eminently an agricultural country. We may take advantage of this and direct the energies of the Dacca school into a line more connected with rural engineering rather than urban.

Agriculture is the largest industry of India; an agricultural college is needed. Zemindars need surveyors and so does Government for settlement and other purposes. Research is required into the engineering side of agriculture. Why not combine the Dacca "School of Engineering" with the "Mainamati School of Land Surveying:" (there is a proposal to remove the former from its present building in the compound of the Dacca College, while the latter is in temporary kachcha buildings that must soon be replaced by something more permanent). These two, with an agricultural school or college, will afford a very useful combination and could offer the following courses:—

(*a*) High grade land surveyors.
(*b*) Lower grade surveyors.
(*c*) Draftsman.
(*d*) Sub-overseers.
(*e*) Upper subordinates. These two latter with special reference to mofussil district board requirements, sanitation, drainage, with side lines-agriculture, irrigation.
(*f*) Agricultural courses as may be specified by agriculturalists.

B. HEATON.
T. H. RICHARDSON.

Civil Engineering College, Sibpur—*contd.*

E. H. ROBERTON.
C. A. KING.
B. C. GUPTA.
R. N. SEN.
S. N. MAITRA.

NOTE.—The evidence above was drafted by the Principal considered at a meeting of the College Council and generally agreed to. Mr. R. N. Sen has written the following additional memorandum :—

I generally concur with the views expressed in the evidence, but I look upon the necessity of severing all connection with the University as extremely unfortunate. I fervently hope for the day when the various branches of knowledge and intellectual pursuit shall find full and free scope for their healthy growth and natural development within the Calcutta University as in some of the modern universities in the United Kingdom. The ideal of organisation is not separation or isolation (which not unoften leads to weakness or abnormal growth detrimental to the body corporate), but harmonious co-ordination and co-operation between the independent units of the organised aggregate, between the different members and limbs of the body corporate. There is perhaps no particular reason why the University of Calcutta should fail to embrace and foster the various educational interests of the country—general as well as technical or industrial. It is a great pity indeed, if the university connection with the Sibpur Engineering College has not so far been beneficial up to the expectation and rather disadvantageous in many ways, but complete separation should only be resorted to if the necessary changes and the desired improvements be impossible or impracticable within the University, just as amputation may be considered necessary for saving the life of the patient only when all other reliable means fail. There is no reason why the Sibpur Civil Engineering College, properly developed and expanded in the fulness of time, should not form the centre of all technical and industrial education within a great university with the high ideal of the advancement of knowledge in all phases and spheres of life. I believe in harmony not only as the soul of music, but as the soul of perfection in everything.

APPENDICES.

TABLE A (see para. 25.)

The Joint Technical Examination Board.	The College and Government.	The University.
An examining body for the courses of the Apprentice Department, these are practically college diploma courses.	....	An examining body for the B E. *Degree in Civil Engineering.*
1. The Joint Technical Examination Board conducts the sub-overseer examination.	1. The Principal.	
	2. The Council of Professors (not recognised by Government).	1. The Board of Studies.
The overseer examination in civil engineering, mechanical and electrical engineering, but not mining.	3. The Board of Visitors (advisory), appointed by Government, with committees.	2. The Faculty of Engineering.
	(*a*) The Domestic Committee appointed by the Board of visitors.	3. The Syndicate. 4. The Senate.
This Board needs reforming as it has no representations of practising electrical or mechanical engineering and cannot take over the mining diploma.	(*b*) Mining, also controls mining education in coal-fields. This is appointed by Government.	The Principal is probably— (*a*) Dean of the Faculty of Engineering.
	(*c*) Civil engineering, Mechanical engineering, Electrical engineering, Dyeing } formed by the Principal when advice is needed.	(*b*) President of the Board of Studies. (*c*) Representative of the Faculty or the Syndicate.
	4. The Governing Body (some executive functions) appointed by Government.	
	(*d*) The Financial Committee of the Governing Body appointed by the Governing Body.	

TABLE B.

COLLEGE ADMINISTRATION.

REMARKS.	BOARD OF VISITORS. 40 Members including— Governing Body 10 (G). Mining Education Advisory Board 11 (M). Domestic Committee 8 (D).	FACULTY OF ENGINEERING. (8 Members).	JOINT TECHNICAL EXAMINATION BOARD. (7 Members).
	ADMINISTRATION (EDUCATIONAL).		
Intended connection with industries	Member of Council in charge of Education . (G). Director of Public Instruction, Bengal . (G). " " " " Bihar and Orissa. " " " " Assam. " " " " Burma. Superintendent of Industries, Bengal . (G), (M). Director of Industries, Bihar and Orissa, represented by Principal, Bihar School of Engineering.	....	Superintendent of Industries, Bengal.
	PRACTISING CIVIL ENGINEERS.		
Government . . .	Secretary to Government (Roads and Buildings) (G).	Secretary to Government of Bengal, Public Works Department, Irrigation.	Secretary to Government, Public Works Department (Roads and Buildings).
	Superintending Engineer, Public Works Department, Eastern Bengal Circle, Bengal.	....	Superintending Engineer, Eastern Circle, Bengal.
	Superintending Engineer, Public Works Department, Gandak Circle, Bihar and Orissa.	....	Superintending Engineer, Public Works Department, Gandak Circle, Bengal.
Railways	Representative of East Indian Railway.		
	" of Bengal Nagpur Railway.		
	" of Eastern Bengal State Railway	Mr. H. A. Crouch, Government Architect.	
Architect Contractor . . .	Sir R. N. Mookerjee . . . . . (G).	Sir R. N. Mookerjee.	

PRACTISING MECHANICAL ENGINEERS.

Railway	Loco. Superintendent (Eastern Bengal State Railway). (G.)	....	None.
Marine	Deputy Director, Royal Indian Marine .	None.	
Contractor	Mr. W. R. Steele (Burn & Co.)		

PRACTISING ELECTRICAL ENGINEERS.

	None.	None.	None.

MINING.

Government Administration .	Chief Inspector of Mines in India . (G), (M). Senior Inspector of Mines . . . (M). Senior Inspector of Mines . . . (M).	.... None.	None.
Indian Mining Association . .	Chairman, Indian Mining Association . (M). Mr. Glen George, Chief Mining Engineer, Bengal Coal Co. (M). Mr. G. Miller, Superintendent . . . (M).		
Indian Mining Federation . .	Mr. M. N. Mukerjee . . . . . (M).		

DYEING.

Messrs. Andrew Yule & Co. . .	Mr. Donne of Andrew Yule & Co. . . .	None.	None.
Manufacturing Chemistry . .	Col. Grice of Smith Stanistreet & Co.		

CIVIL ENGINEERING COLLEGE STAFF.

	Principal, Civil Engineering College (G), (D), (M).	Principal, Civil Engineering College . . .	Principal. Civil Engineering College.
	Professor of Civil Engieeering . . (G), (D).	Professor of Civil Engieeering.	
	Professor of Mining . . . . (G), (M).	Professor of Mechanical Engineering.	

TABLE B—*cont'*.

OTHER EDUCATIONAL MEMBERS.

	Principal, Bihar School of Engineering, Bihar and Orissa. (M).	....	Principal, Bihar School of Engineering.
	Head Master, Dacca School of Engineering, Bengal	....	Head Master, Dacca School of Engineering.
	Inspector of European Schools, Bengal . (D).		

GENERAL PUBLIC.

	Commissioner, Burdwan Division.	
	District Magistrate, Howrah . . . (D).	The Registrar of the University.
	Civil Surgeon, Howrah . . . . (D).	Mr. Middlemiss of Geological Survey.
A prominent benefactor to education.	The Hon'ble Maharaja of Kassim Bazar.	
Interested in industrial education	The Hon'ble Sir Nil Ratan Sarkar . . (D).	
Principal, University College of Science.	Dr. P. C. Ray.	
Prominent Muhammadan . .	Nawab A. F. M. Abdur Rahman . . (D).	
Indian Association for the Cultivation of Science.	Rai Jogendra Chandra Ghosh Bahadur . (D).	

The members of the Faculty of Engineering are nominated or elected. There are none *ex-officio* to simplify comparison the posts occupied by the present members are given.

COWLEY, The Hon'ble MR. F. A. A.

A candidate desirous of pursuing a special course of study in the higher branches of engineering with a view to adopting engineering as a profession should have a good sound general school education. This may be tested by either a special examination or by requiring the candidate to pass some recognised standard of examination, such as the intermediate examination in science of the Calcutta University. It is essential that he should have a good practical knowledge of English and English composition and be able to show general proficiency in the lower branches of pure and applied mathematics and applied science.

In addition, he should have a fair knowledge of machine, geometrical, perspective and free hand drawing and his knowledge of these subjects should be tested by a special examination.

He should then be admitted to a special college of engineering where he can undergo a special training in the higher branches of study, both theoretical and practical, for the engineering profession.

His progress during this training should be tested by periodical examinations at which he should attain a minimum standard of efficiency. At an early stage, say at the end of the first year of his special training, if the candidate does not show an aptitude for the engineering profession he should be required to leave the Engineering College or for special reasons be required to go through the first year course over again.

He should be finally tested at the end of his college course provided he has made use of his opportunities for learning, by the university examination for the degree of bachelor of engineering. Having obtained his degree of bachelor of engineering he should finally be required to go through a practical course of engineering to fit him to carry on his profession.

The brief summary which has been given of the educational requirements of a candidate who desires to practise engineering as a profession is what my experience teaches me to be required. In Bengal, at the present time, the course of instruction imparted to candidates generally follows the course which I have stated above, but my experience shows:—

(*a*) That graduates in engineering in the present day have not much aptitude to apply to practice the knowledge which they have studied in theory.

(*b*) That, to a large extent, they are unable to express themselves properly in English.

I attribute this largely to the candidates'—mostly Bengalis—power to assimilate text-book knowledge without reference to practical application and to their deficient grounding in modern English prose.

The above are my general views on the subject of education for the engineering profession in India.

CROUCH, H. A.

It is, I consider, highly desirable that provision should be made for the systematic training of architects in India. A start has already been made in this direction in Bombay. A class was formed some fifteen years ago in connection with the School of Art in the first instance, and mainly for training architectural draughtsmen. This class was held in the mornings before office hours and instruction was given by architects in Government service and others practising in Bombay. The class developed and formed the nucleus of a school which at the outbreak of the war had been placed in charge of a professor of architecture specially recruited from England for the purpose. A few men who have passed through this school have subsequently proceeded to England and qualified as associates of the Royal Institute of British Architects.

No similar opportunities for the study of architecture exist in Calcutta. A few lectures on the principles of architectural design were given prior to the war to the third and fourth year students at Sibpur Engineering College by one of their professors who is not an architect, but this subject is not included, I understand, in their examinations. At the

School of Art a class is held in architectural drawing. The time table of the school, however, prevents the attendance of the few qualified architects practising in Calcutta.

It appears to me to be most desirable that a school of architecture should be established here. With the present rapid growth of this city, and, considering the amount of decentralization suggested by the report of the Public Works Department Reorganisation Committee recently published, there should be plenty of scope for men who pass through such a school and subsequently fit themselves for the practice of architecture.

I would suggest a three-year course being established at Sibpur College for specialising in architecture, the entrance standard for which should not be less than the intermediate science or intermediate arts pass. I suggest Sibpur in preference to the School of Art to avoid duplication of staff. Some of the subjects taken by the students in the School of Architecture, *e.g.*, materials, building construction, stresses and strains, reinforced concrete, etc., would be somewhat similar to those taken by the engineer students. On the completion of this three-year course, a further two years in the office of a trained architect would be necessary for practical experience before a man could be considered thoroughly qualified to practise architecture.

The architectural side of Sibpur should be placed under a professor of architecture who in the first case would probably have to be recruited from Great Britain. He should have had previous experience in teaching, should lecture on the history of architecture, mouldings, features and ornaments of the various periods, on the principles of design, on sanitary science and on town planning.

On the assumption that the staff of the Engineering College would be able to instruct the architectural and engineering students in subjects common to them both, I think a professor of architecture with the aid of one assistant master would prove sufficient staff for the architectural side of the college, provided admissions are limited to twenty students each year. On the other hand, if the staff of the college were not available for the architectural students it would be found necessary to appoint two assistant masters. It would, I think, be an advantage for the engineer students to attend the course on town planning on the architectural side of the college.

A great deal must depend on getting the right type of man in the first instance as professor of architecture. Such a man could, I think, be recruited on a ten-year agreement, the first three years of which could be on probation, provided sufficient terms and a bonus at the expiration of the period were held out as an inducement. I suggest that he should be allowed free quarters and have the rights of private practice. He should receive a salary of not less than Rs. 800 per mensem in the first year, rising by annual increments of Rs. 50 until the end of his agreement and be allowed to contribute to a provident fund on a scale not lower than the Railway Provident Fund, *viz.*, a compulsory contribution of $\frac{1}{12}$th of his salary, a bonus of 100 per cent. on his contribution and 4 per cent. compound interest. The above are the minimum terms a good man at all conversant with the conditions of life in Calcutta is likely to accept. It may prove necessary to improve the terms to induce the right type of man to join Government service for only ten years.

The assistant master would also, in all probability, have to be recruited from England in the first instance. I suggest that he should receive a salary of Rs. 400 with annual increments of Rs. 40 and the privilege of contributing to a provident fund similar to the one I have described.

RICHARDSON, THOMAS H.

I have read the note by the staff of the Civil Engineering College and I agree with it generally, except that I would not approve of a technical college giving a B.E. degree. A university degree should mean a good general, as well as technical, education alongside of students in other subjects.

It is not a question of which system is best, but one system ought not to pretend it gives the same as the other.

Membership of the Bengal Engineering College as in the case of the College of Surgeons at Home would indicate what the training was.

TIPPLE, E. F.

The witness has had nearly twenty-one years' experience of educational work as Professor of Mathematics at Thomason College of Civil Engineering at Roorkee, United Provinces, at which institution he has on two occasions officiated as principal, he has also had some experience of school work as a member of the Central Board of Examiners for the School Leaving Certificate in the United Provinces and has acted for some years as a mathematical examiner for the degree examinations of the Allahabad University. Consequently the evidence submitted herewith is drawn solely from educational experience gained in these provinces (United Provinces) and the witness does not pretend to any special knowledge of educational conditions in Bengal.

Moreover, the Thomason College, although for some years nominally affiliated to the Allahabad University, has never formed an integral part of that University, its true position having always much more closely resembled that of an isolated school of engineering such as existed in England at Coopers Hill from 1871 to 1905, and consequently the witness possesses no intimate knowledge of the inside working of Indian universities.

This statement has, therefore, been prepared with the object of drawing attention to certain anomalies which exist in the administration of Indian educational affairs and which hamper the healthy development of educational activities in this country.

Briefly stated these anomalies are:—

(*a*) Educational experience gained in India by the educational officers of Government is largely a wasted asset.

(*b*) A lack of continuity exists in the main outlines of the educational policy of Government.

(*c*) The disciplinary value of Indian education, under existing conditions, is extremely small.

(*a*) *Wasted asset.*

Direct evidence for this has been collected and summarised at different times in connection with educational developments at Thomason College, and is contained in the appended minutes:—

Appendix I.—Minute on the Thomason Civil Engineering College, Roorkee, 1907.

Appendix II.—Minute on Technical Education in the United Provinces, 1909.

Appendix III.—Minute on Indian Education with special reference to the reorganisation of the Indian Education Department, 1913, and

Appendix IV.—Four Minutes submitted to the Public Works Department Reorganisation Committee.

The majority of this evidence applies primarily to the Thomason College, but as indicated in the Minute on Indian Education there appear to be reasonable grounds for considering that this anomaly which has exerted such conspicuous influence at Thomason College and at Coopers Hill, is to some extent a general feature of Indian educational administration.

Thus, the unwieldy senates of Indian universities and the lack of safeguards to ensure the presence of adequate teaching experience on the faculties appear to be traceable to this cause; while the unsatisfactory position of Directors of Public Instruction in the local secretariats is an indication of the value attached to educational experience at the head-quarters of local Governments.

This attitude is reflected at many educational institutions, whether schools or colleges, where it is customary for the head of the institution to withdraw from actual teaching or tutorial work and confine himself, almost entirely, to administrative duties; which, thereby, acquire an exaggerated importance quite out of proportion to their true significance; while, at the same time, the administration itself tends to lose touch with educational realities.

In the interests of educational work it is of the highest importance that this attitude should be radically altered. An attempt was made to purge the senates of Indian universities, during Lord Curzon's régime; it is, however, doubtful whether this process has been continued far enough.

TIPPLE, E. F.—*contd.*

(*b*) *Lack of continuity.*

Evidence under this heading, so far as it relates to Thomason College, is forthcoming in the two appended minutes (Appendix IV, A and B) submitted by the witness and Dr. Phillips to the Public Works Department Reorganisation Committee. Moreover, although this evidence applies primarily to a single institution of somewhat restricted educational scope, it must be borne in mind that for ten years this institution was affiliated to Allahabad University; was, during that time, supposed to be "developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces," was expending large grants on such so-called development; and its affairs were receiving a considerable amount of first-hand attention from both the Government of the United Provinces and the Government of India.

Under such circumstances the record in the two minutes suggests that much difficulty was experienced by Government in attempting to follow a continuous and consistent line of educational policy extending over a considerable period of years.

This is more clearly indicated, so far as the local Government is concerned, in the case of the technical classes at Thomason College and in the matter of the affiliation of the institute to the University. In connection with this latter point it may be noted that affiliation took place about 1895, disaffiliation in 1905, Government accepted a resolution in the Provincial Legislative Council in favour of re-affiliation in 1916, while the recently appointed principal expressed himself as opposed to such affiliation in 1917 when giving evidence before the Public Works Department Reorganisation Committee.

Similar want of continuity has been exhibited in connection with the development of industrial schools in the United Provinces; and considerable explanation in official resolutions has been necessary in connection with educational readjustments at the headquarters of the Government of India since the appointment of a Director General, his abolition, and the subsequent creation of an Educational Commissioner, before the full coherence of these changes could be made manifest (*vide* also Minute on Indian Education, Appendix III).

Disciplinary value.

It is not necessary to put forward much special evidence on this point, since the fact is more or less generally admitted. Reference may be made, however, to the frequency of strikes among students at Indian schools and colleges; the excessive sympathy exhibited towards the failed candidate, and the tendency to regard him as the victim of anything other than his own intrinsic incapacity; the numerous applications for leave from study submitted on every conceivable opportunity and for any conceivable reason; habits of unpunctuality and general carelessness with regard to regulations.

These matters reflect primarily upon the home and school life of the pupils, but they cannot be disregarded in any study of Indian university life. Unless a sound foundation in discipline and a sense of responsibility be laid in habits fostered at home and in school it will be almost impossible for the colleges to raise any profitable educational superstructure whatsoever.

Experience at Thomason College, however, indicates that the authorities have not always been free from liability in this matter; thus some few years back it was discovered that candidates for entrance had in certain cases falsified their ages and had thereby gained admission under false pretences. Special steps were taken to prevent the recurrence of this irregularity, but a year or two later the authorities themselves admitted certain candidates who were over-age, which action at once created a sense of grievance among the regular candidates who were obliged to compete with those irregularly admitted.

Furthermore, any lack of continuity in policy is bound to create hardships which will naturally demand special treatment, and the multiplication of such cases is not conducive to good discipline.

In conclusion, the witness in presenting the evidence from Thomason College, is in no way attempting to urge that the conditions existing at that institution should be regarded as typical of educational institutions in India. No attempt is made to disguise the fact that the conditions at Roorkee are in many ways exceptional and special.

TIPPLE, E. F.—*contd.*

Apart from this, however, it must be admitted that Thomason College is an educational institution which has received a large amount of direct official attention, but which has not fulfilled its educational purpose as outlined by the Colvin Committee in 1891 and subsequently by the Government of India in 1903; that its counterpart in England at Coopers Hill, under the management of the India Office, similarly failed to develope into a successful school of general engineering; that the failure in England was of no great consequence since other and better organised schools existed; that the failure in India is of greater importance since it hampers the general development of technical education in the country.

It may, therefore, reasonably be maintained that the existing system of administration of Indian educational affairs is not really stimulative and consequently needs fundamental readjustment.

APPENDIX I.

MINUTE ON THE THOMASON CIVIL ENGINEERING COLLEGE, ROORKEE, UNITED PROVINCES, 1907.

Brief résumé of college history (*vide* Appendix A).

The origin of this College was a training school for artisans started at Roorkee in 1845 at the time of the construction of the Ganges Canal. The increasing activity of the Public Works Department about that time quickly led to the organisation of a college intended to train civil engineers for this branch of the public service. The college was thus the forerunner of Coopers Hill, but its educational work has always been more extensive in character than that of the sister institution founded later in England. As early as 1848, its work was divided into three parts corresponding with the present engineer, upper subordinate and lower subordinate classes; the object being to train men for all grades of the Public Works Department and not merely for the superior establishment. At its inception, the College was placed under the management of a Royal Engineer as was natural at a time when these officers formed the only trained body of engineers in the country. With the increasing demands of the Public Works Department for men with an engineering training and with the growing desire of the Government to assist industrial developments, the scope of the college work has at different times been enlarged until at present it claims to be "developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces." Thus there are now industrial classes, mechanical apprentice classes, and technical classes, in addition to the three mentioned above, from which it follows that the educational work attempted is of a much more complex character, and covers a much wider range than was the case at Coopers Hill, and for thorough efficiency the organisation and control of such an institution must rest upon a sound educational basis.

Expenditure.

Annual cost taken from statements in college calendar.

The following figures for the expenditure in the sessions 1902-03 and 1903-04, may be verified from the statements at the end of the college calendars for 1904 and 1905, the most recent issues up to date :—

	1902-3.	1903-4.
	Rs.	Rs.
Total expenditure	2,32,862	2,59,719
Total receipts	1,02,752	1,13,133
Cost to Government	1,30,110	1,46,536
Teaching staff salaries	79,661	83,109
Office establishment	9,006	8,080
Cost of college printing work	6,495	4,999
Total press receipts	35,267	44,460
Total cost of Press	33,616	40,114
Profits of Press	1,651	4,546

TIPPLE, E. F.—*contd.*

With regard to these figures, it may be noticed that,—

Abnormal office expenditure.

(*a*) The Principal's salary is included under teaching staff, although his duties are those of a registrar or superintendent of an office. Under the present system the Principal takes no part in the real educational work of the College, all his time being devoted to correspondence and routine office work. If this item of expenditure be transferred to office establishment to which at present it rightly belongs, the figures become—

	1902-3.	1903-4.
	Rs.	Rs.
Teaching staff	66,342	68,009
Office establishment	22,325	23,180

giving a proportion of about 3 to 1 upon which comment is scarcely necessary.

Profit-making section detrimental to educational interests.

(*b*) From the above figures it is also seen that the amount of work performed for the College by the Press fell from $\frac{1}{6}$ to $\frac{1}{9}$ of the yearly output during the two sessions considered. This decline has continued, and at present all the College printing work is sent to the Government Printing Depôt at Allahabad, so that the College press executes work almost exclusively for the Government Survey Department, and must consequently be regarded as almost entirely a commercial section, its object being mainly profit-making, and its educational work, if any, being merely the training of press artisans or apprentices.

The inclusion of a commercial profit-making section at any educational institution is very strongly to be deprecated, since immediate commercial and educational interests are incompatible. An institution devoted to technical education, or even to technical training,* cannot be run at a profit, and in the matter of developments and extensions wherever an attempt is made to serve the double purpose, there will always be a tendency to favour the so-called paying section in preference to the non-paying one. The higher part of the educational work is thus placed at once at a considerable disadvantage.

Moreover, for true commercial success, customary business hours, and the discipline necessary between servant and master, must be rigidly enforced. This latter is fundamentally different from that which should exist between a pupil and teacher, while the mental attitude of the student towards his daily task should be equally distinct from that of the workman towards his daily labour. Consequently any serious attempt to combine two such dissimilar sections at one and the same institution must result in loss of efficiency in each.

At Thomason College, where the commercial section occupies nearly $\frac{1}{3}$ of the College main building, some compromise in the matter of working hours and discipline cannot be avoided; while, furthermore, the presence of this section has necessitated the building of a workshop block, a central power station and new class-rooms at a considerable distance from the main building, thus preventing that systematic arrangement of plant and accommodation which forms such a special feature of up-to-date technical institutes in England, and without which proper supervision and consequent educational efficiency cannot be assured.

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* By technical training is meant the instruction which would be given in so-called trades classes, *i.e.*, for plumbers, fitters, weavers, bricklayers, etc. For such technical courses, the only previous education necessary is that given in a primary school, *e.g.*, reading, writing and arithemetic.

Technical education, on the other hand, is provided at such technical institutes as at Charlottenburg, or the City and Guilds of London Colleges, etc. For such courses the students at entrance must have had a good secondary education on scientific lines, and on passing out they are qualified for the careers offered in connection with civil, mechanical or electrical engineering, or industrial chemistry.

TIPPLE, E F—*contd.*

Organisation.

The students taking the different courses at this College may be separated under two headings—civil and military, the numbers in each case, as taken from the College rolls for 1905-06 and 1906-07, being as follows :— Small percentage of military students on college rolls.

Courses.	Civil.		Military.	
	1905-6.	1906-7.	1905-6.	1906-7.
Engineer classes (3 years) . . .	68	68	*nil*	*nil*
Upper subordinate classes (2 years) .	56	59	21	20
Lower subordinate classes (2 years) .	125	122	*nil*	*nil*
Draftsman and computer (3 years) .	11	13	*nil*	*nil*
Mechanical apprentice (3 years) .	42	51	*nil*	*nil*
Industrial sections (4 years) . .	61	79	*nil*	*nil*
Technical classes (3 years) . . .	..	33	..	*nil*
Military survey (9 months) . . .	*nil*	*nil*	30	28
TOTALS .	363	425	51	48
Percentage of military students .	..	..	12%	10%

The military survey classes really form no integral part of the Civil Engineering College since they have their own military instructors and their nine months' course includes only very elementary mathematics and the rudiments of survey. It should, therefore, be possible to make provision for them at any sapper instruction depôt, where classes are held for pioneers and others. Excluding these classes, the percentage of military students is reduced by half, falling to less than 5 per cent. and consisting only of a small number of non-commissioned officers forming part of the Upper Subordinate classes. These undergo a two years' training in civil engineering in company with civilian students, and since no instruction is furnished or required in military engineering, they may for all practical purposes, be regarded as civilians.

The teaching staff as taken from the college calendar for 1905, excluding workshop foremen, numbers twenty-seven, of whom eleven are military members, being equivalent to 40 per cent. Three of these military members are employed solely with the military survey classes and, excluding them, the proportion of military members on the staff of this Civil Engineering College stands at 8 out of 24 or 33 per cent. Furthermore the percentage of military members appointed to the College Council is even higher than this, being 50 per cent., and this figure is unaltered by the exclusion of the military survey instructors who are unrepresented on the council. Disproportionate percentage of military members on college staff and Council.

The original scheme of organisation provided for three separate staffs :— Original organisation.

(*a*) The engineer class staff directly responsible to the Principal and employed in training civil engineers for the superior branch of the Public Works Department provincial service.

(*b*) The upper subordinate staff under a head master who is directly responsible to the Principal for the arrangement of the educational work of the upper subordinate classes in which students are trained for positions as overseer or sub-engineer in the Military Works Service or Public Works Department.

(*c*) The lower subordinate staff under a native head master, who is directly responsible to the Principal for the arrangement of the educational work of the lower subordinate classes in which students are trained for positions as sub-overseer in the Public Works Department.

Shortly after the reorganisation in 1897, the civilian professors then appointed were naturally required to exercise supervision over their own particular branches of the educational work throughout all the classes in the College, and to this end Staff Circular No. 13 was issued in 1899 and confirmed in 1902 by No. 31 as follows :— Subsequent alterations following Colvin Committee's enquiry.

"From November 1st, 1902, the work of the College will be divided into four sections. The complete control and arrangement of the tuition in the various sections of study, as detailed below, will devolve on the professor in charge of each section who will be directly responsible to the Principal. This responsibility will extend to every class in the College. The professors will be assisted by the instructors detailed below."

TIPPLE, E. F.—*contd.*

Furthermore, in 1901, a college council was constituted to promote "the free and unrestricted interchange of ideas between the Principal and the staff."

Changes more nominal than real.

Excellent as all these provisions are, a serious difficulty exists in carrying them out by reason of the military spirit pervading the institution.

This is shown in the case of the newly-formed technical classes since the many difficult educational questions connected with the successful inauguration of these classes were not referred to any meeting of the College Council until new class-rooms had been provided, actual courses of instruction commenced, and a fourth separate staff under the technical instructor created. It is thus evident that the change in organisation introduced by the above circulars is more nominal than real, and that responsibility is now divided in an undefined manner between principal, professors and head masters.

The military spirit also destroys any useful purpose intended to be served by the College Council. Fifty per cent. of the members are military officers, including subordinate officers, who are naturally diffident in regard to proposals put forward by a senior military officer, since any independent criticism is apt to be viewed as a breach of discipline.

It has been claimed for this institution that it should "control and stimulate teaching of all kinds in the United Provinces," but it must be admitted that its organisation and the general co-ordination of the different scientific branches of its educational work are lamentably defective when compared with those of any technical institution of recognised standing in England. At the Thomason College no authoritative educational check exists, either in the form of a properly constituted college council, board of studies, or faculty of engineering.

Educational efficiency.

Comparison with Coopers Hill (*vide* Appendix B).

In the early days of technical education, efficient methods had to be discovered and mistakes could not be entirely avoided; but now much valuable experience has been gained, both in England and other countries. It was neglect to profit by this experience which led to the downfall of Coopers Hill, and genuine effort is necessary to prevent a repetition of the disaster in the case of the Civil Engineering College at Roorkee.

Coopers Hill was under the management of a military principal, the professors being required simply to obey orders in connection with all matters concerning the general arrangement and control of the college work. The blue-books, published after the Coopers Hill enquiries of 1901 and 1904, contain many references to instances in which the efficiency of the educational course was adversely affected by this system of management. Thus it was shown that elementary and simple subjects, such as estimating and survey, received an altogether disproportionate amount of time; the mutual arrangement of courses of lectures, in accordance with the special qualifications of different members of the staff necessitated by the appointment of a new member, was vetoed for no given reasons; matters connected with laboratory equipment were not adequately discussed; and finally it was emphatically stated that "the success of the College in sending a number of good men to India was rather in spite of the system than anything else." It was affirmed that though the men at the top of the Coopers Hill lists were as good as those at other institutions, yet there was a considerably longer tail of inferior men. Moreover, it was also stated that "the absolute control of everything, even of the educational system of the College, was in the hands of the President...who had had no experience of educational matters. The result was that the College oscillated somewhat violently from one *régime* to another."

Educational inefficiency (*vide* Appendix C).

All these matters can be paralleled at Roorkee, and the inefficiency produced is necessarily greater since the work attempted is more complex. Three examples will suffice to support this statement:

(1) Thomason College with some 400 students on its rolls possesses no properly designed or adequate scientific laboratories and only one small lecture theatre. Moreover, no provision whatsoever is made for any engineering laboratory course such as is deemed necessary at recognised technical colleges in England.

(2) The original metal-testing plant procured in 1899 proved to be entirely unsuited to the requirements of the College and was condemned by expert opinion. It has been satisfactorily replaced, but its purchase involved a waste of over £800.

TIPPLE, E. F.—*contd.*

(3) The question of living accommodation for the students is an extremely important one in a small Indian station like Roorkee. In the case of the engineer classes, the living accommodation available has not been increased within the last fifteen years or more, though the number of such students has almost doubled. The consequence is that they are now crowded four and five together in small bungalows originally designed for two, and any serious private study in their own quarters is almost an impossibility. Furthermore, all military members of the staff are accommodated on the college estate, but the lower subordinate staff and the industrial class students live in the bazar in the native city and constitute a grave danger in cases of plague epidemic. Recently the lower subordinate head master died of plague, and the bazar was placed out of bounds, though the efficacy of this measure was much diminished for the above stated reason.

Necessity for a properly constituted board of studies.

These items clearly indicate the necessity which exists for the formation of a body of responsible educational officers at the College, from whom a consensus of opinion could be obtained regarding proposals for alterations and extensions affecting the College, and it should be definitely laid down that no such proposals can be entertained by Government until they have been laid before this body for consideration. This matter is of vital importance, and the system suggested forms a leading feature of all modern technical colleges of recognised standing in the educational world. Now that the work of Thomason College involves so many different courses of instruction, efficiency and economy demand the complete abandonment of the old system of separate staffs for each class; and in its place the proper co-ordination of the educational work in different scientific branches by which means only can the unnecessary duplication of elementary courses be avoided, a satisfactory system of supervision introduced and thorough efficiency ensured.

System advocated.

Such a properly co-ordinated system can be seen in working order at the City and Guilds of London Institutes' Central Technical College, South Kensington, where the work is divided into the following sections:—

(1) Mathematics.
(2) Civil and mechanical engineering.
(3) Physics and electro-technology.
(4) Chemistry and chemical-technology.

The professor in charge of each section is an educational officer, and is solely responsible for the branch of the work committed to his care. The instructional accommodation is so arranged that the work of each section is self-contained in one portion of the college building, by which means effective control by one officer is rendered possible.

A board of studies, consisting of the senior officers of the sections, meets periodically to arrange all important matters concerning the educational work as a whole. All matters of great moment are referred through the Dean to the Committee of Managers who control the funds, and their decision in due course is communicated to the Board of Studies by the Dean. The Board of Studies thus fulfils the functions of a faculty of engineering at a modern university.

The Dean or Principal, who is the recognised head of the College, is an educational officer in charge of one of the sections above mentioned, and is Chairman of the Board of Studies, but being a staff colleague, is merely one amongst equals and has no autocratic powers.

E. F. TIPPLE.

P. P. PHILLIPS.

APPENDIX I-A.

[*Extract from "Pioneer," 8th February, 1907.*]

TECHNICAL EDUCATION.

Roorkee Engineering College.

It was officially put on record by the Government of the United Provinces in their resolution on the educational report last year, that the extension of the Thomason Civil

TIPPLE, E. F.—*contd.*

Engineering College, Roorkee, calls for an expenditure of three and a half lakhs. Since then a certain portion of this money has been forthcoming in connection with the inauguration of the new technical classes at Roorkee, and more will probably follow in due course. A brief glance, therefore, at the growth of this institution and the general trend of its more recent developments may be not altogether without interest, since it is the leading engineering college in the country, and as such its educational efficiency is assuredly a matter of some moment.

The College has developed from what was originally in 1845 merely a training school for artisans employed in the construction of the Ganges Canal. In 1848 its educational work was divided into three departments corresponding to the engineer, upper subordinate and lower subordinate classes now in existence, and in this form it was largely extended in 1854 owing to proposals made by Mr. Thomason, who, in view of the large annual expenditure on public works, earnestly desired the establishment of an engineering school capable of supplying the needs of the Public Works Department. The demand in this country for men with a knowledge of engineering is a steadily increasing one, and in 1891 a committee on technical education was appointed, from which resulted a second great scheme for the reorganisation and extension of the Civil Engineering College at Roorkee. The proposals then put forward began to materialise in 1896-97, some ten years ago.

These two main schemes, the one in 1854, due to Mr. Thomason, and the other in 1896, due to Sir Auckland Colvin's committee, present one or two points of interest for the educationalist. In Mr. Thomason's time technical education was a thing almost unknown; it scarcely existed in the British Isles, where the earliest chairs of engineering, those connected with the universities of London, Dublin and Glasgow, had only been recently founded, and it was before the appointment of Professor Rankine to the last of these and the delivery of his inaugural address upon "The Harmony of Theory and Practice." Consequently no ordinary portion of praise is due to the able Lieutenant-Governor who foresaw the need for technical education so clearly, and urged its claims so strongly upon those responsible for the general administration of this country. His desire was to meet the need of India for industrial development by spreading technical education among her peoples, and the acceptance of his proposals was an admission of the necessity for increasing the facilities for such training in this country, and resulted in the establishment of an engineering college on the lines which at that time seemed most suitable.

Evolution of technical teaching.

In 1891, however, matters were very different; many engineering schools were in existence at home, and the Government of India itself had been fostering Coopers Hill for twenty years, while the great success attendant upon Germany's efforts to spread technical education was already well assured, and her educational methods justified. There was consequently ample material at hand to enable the committee to formulate a scheme for an engineering school organised upon modern lines, and it can easily be seen that their proposals were directed towards this end.

It is necessary here to consider for a moment the development of these schools at home, with regard to which it must be noticed that the training supplied in no way pretends to replace that acquired by actual engineering practice, upon which sole reliance was placed in the old days of apprenticeship. The engineering school training simply supplies something in addition to this latter by means of which the student will later be able to benefit more quickly and more fully from the experience which awaits him in the field of actual engineering practice. Thus he is trained in scientific habits of thought, his critical faculty is sharpened by the presentation of engineering problems for consideration and discussion, while his mental equipment for the solution of such problems is daily improved. It was upon the nature and value of this training that Professor Rankine dilated in his dissertation mentioned above, from which the following quotation is taken: "In theoretical science the question is—what are we to think?—and when a doubtful point arises, for the solution of which either experimental data are wanting or mathematical methods are not sufficiently advanced, it is the duty of philosophic minds not to dispute about the probability of conflicting suppositions, but to labour for the advancement of experimental inquiry and of mathematics, and await

TIPPLE, E. F.—*contd.*

patiently the time when these shall be adequate to solve the question. But in practical science the question is—what are we to do?—a question which involves the necessity for the immediate adoption of some rule of working. In doubtful cases, we cannot allow our machines and our works of improvement to wait for the advancement of science; and if existing data are insufficient to give an exact solution of the question, that approximate solution must be acted upon which the best data attainable show to be the most probable."

This concisely explains the necessity for arranging higher technical educational work under different scientific branches in proper co-ordination with each other, and also the success which has attended the development of such work in connection with universities at home. A university and its technical school are mutually complementary, the work of each increases the demand for that of the other; and, furthermore, the management and development of such a school must be directed and guided by those actively engaged in scientific and educational work. The fate which has overtaken Coopers Hill, surrounded by prospering technical colleges properly organised, amply justifies this statement.

Sir Auckland Colvin's work.

The proposals regarding Thomason College, made by Sir Auckland Colvin's committee in 1891, all show that the above general truths were realised. The College was transferred from the Public Works Department to the Education Department, it was affiliated to Allahabad University, and its educational staff was strengthened on the purely scientific side, thus showing that the development was intended to take place along lines which have been successfully followed by similar institutions at home. Accordingly it is now most earnestly to be desired that the movement then started be continued in the same direction, and that no retrograde steps be made. The important part which a properly organised technical institution may play in industrial development should clearly be borne in mind when any question connected with extensions or changes at Roorkee is under consideration. Part of the function of a technical college is undoubtedly to indicate new industrial methods which may be turned to commercial advantage, but with this indication its duty ceases, and the actual introduction of departments for purely commercial work in connection with which educational results are not the first consideration would ultimately prejudice the future utility of the school. Such a step would lead necessarily to a confusion of interests, and there would be danger of the primary character of the college as an educational institution being overlooked in the developments of so-called paying departments. Higher technical education is costly to provide, but the establishment and proper development of technical institutions on broad scientific lines is an urgent need in this country, and in endeavouring to meet this need, it is most essential that the close relation between pure and applied science be kept clearly in mind. In England this is evidenced by the number of modern universities which have recently sprung into existence, whose most marked characteristics are their departments of applied science. It is, therefore, to be hoped that any further developments at Roorkee will continue along the lines already indicated by Sir Auckland Colvin's committee, and result in strengthening the ties between Thomason College and other Indian educational institutions.

APPENDIX I-B.

[*Extract from "Indian Daily Telegraph," 1st February 1905.*]

THE LESSON OF COOPERS HILL.

The recent meeting of the Allahabad University Senate and the discussion on the proposal to abolish the faculty of engineering, naturally directs attention to the Thomason Civil Engineering College at Roorkee. The cost of this College forms a large item in the educational expenses of the Government of these provinces and this fact, combined with the fate which has overtaken the sister college at Coopers Hill, renders it important that the position of the Thomason College as an educational institution should receive very careful consideration. Consequently it is not out of place to examine

TIPPLE, E. F.—*contd.*

in some detail the causes which led to the failure of Coopers Hill to maintain its place among the engineering schools of Great Britain, and then by comparison to see whether sufficient precautions are being taken to guard against similar evils making their appearance at Roorkee.

At its foundation Coopers Hill had practically a clear field for the education of engineers, since it is admitted that no rival school was then in existence. Its teaching staff contained men who have made reputations as experts in the education of engineers, to prove which it is only necessary to call to mind the names of Professors Unwin, Minchin and Hearson. The great need for engineering schools in England at that time has been amply shown by the success of the later schools founded by the City and Guilds of London, the universities of Cambridge and Victoria, and many other educational bodies at home. Yet, despite these initial advantages, Coopers Hill failed to establish itself on a sound basis, and has been completely outstripped in the professional race by these other institutions which came into existence at later dates. Every allowance may be made for such success as did attend the efforts at Coopers Hill; some sixteen hundred students passed through the college, and it is only natural that many of these have since become well known and eminent engineers. The true measure of its educational efficiency, however, can only be determined by comparison with rival institutions, and from the evidence given at the last Commission, it cannot be doubted that the market value of the Coopers Hill diploma was much below that existing in the cases of other engineering schools. Thus Professor Hudson Beare stated that the technical examinations at Coopers Hill were not so stiff as those at Edinburgh University, and that although the men at the top of the Coopers Hill lists were as good as the top men at other institutions, yet there was a considerably longer tail of inferior men distinctly below the average. Consequently it must be admitted that Professor Minchin asserted with some truth that "the success of the college in sending a number of good men to India was rather in spite of the system than anything else." Under such circumstances the college as an educational institution must be regarded as a failure, and although it turned out a few good men every year for the guaranteed appointments, its educational efficiency has been extremely small.

In endeavouring to discover the causes of the disaster, the capabilities of the teaching staff is naturally the first point to be regarded. Here we meet at once with the names of men well-known in the educational world at home and whose abilities are held in high esteem by many recognised experts, as was very clearly shown at the time of the compulsory retirement of several members of the staff shortly after Colonel Ottley's appointment as president. Furthermore, Professor Unwin, who was on the staff for thirteen years, has been very largely responsible for the success of the technical colleges of the City and Guilds of London which he joined on leaving Coopers Hill, and it is consequently impossible to blame the teaching staff for the failure of the college to hold its own. It is when we examine the system of management that we discover the most startling diversity between the method at Coopers Hill and that adopted at the colleges of universities and other educational bodies. At Coopers Hill the president has always been an officer devoid of any previous training or experience in educational matters such as would be regarded as quite indispensable for the proper discharge of his duties at any other educational institution. Frequently he has been an officer who has taken no actual part in the teaching work of the college, and concerning this system it was stated before the Commission that "until eighteen months ago . . . the absolute control of everything—even of the educational system of the college—was in the hands of the president, and the presidents were men who had had no experience of educational matters. The result was that the college oscillated somewhat violently from one *régime* to another—one president thought one thing important, and another thought a very different thing was important, and so on." Under such circumstances it is not surprising that the college course lacked that thorough co-ordination between its different branches which is so essential a factor for success in any educational scheme. Ill-matured plans for changes and extensions could be forwarded to the Secretary of State for sanction without being subjected to careful scrutiny by experts capable of judging each separate item in its proper relation to the whole. The waste of time, energy and money produced by such conditions, it is impossible to estimate, and the failure of the college to maintain its position was a natural result.

TIPPLE, E. F.—*contd.*

If this system of management be compared with that adopted at the City and Guilds technical colleges, its deficiencies become still more strikingly evident. The system in vogue at these colleges has been evolved by Sir Philip Magnus, Professors Unwin, Perry, Armstrong, Ayrton and others, being an adaptation of the methods followed in the great German polytechnics which have done so much for the technical education of that country. Under this system the principal or president is a senior member of the teaching staff in charge of one of the three or four branches under which the college course is grouped, one professor with assistants being responsible for each branch. The professors form the college board or senate of which the principal is president, and this board is responsible for the educational system as a whole. All schemes for extensions or alterations must be passed by this board before they can be carried into effect. Such schemes, if passed, are then laid before the committee of management by the principal as the representative of the educational staff, and the committee, if the funds are available, sanction the expenditure. This committee of management is composed of the trustees and business men in charge of the college finances, and is represented in the case of Coopers Hill by the Secretary of State. Under this system it is essential that the principal should be an educationalist, and that sanction should not be given to any expenditure for extensions or alterations until the plans for these have been duly passed by the educational board, by which means alone their educational efficiency can be guaranteed. In the case of Coopers Hill, it is evident that each president has been in reality little more than a superintendent of office work or registrar posing as an educational expert, and that in relation to the members of the teaching staff he has not been *primus inter pares* as would be the case at other educational institutions, but he alone has been held responsible for the whole of the college educational work. Consequently each successive president introduced just such changes and advocated just such developments as seemed desirable in his own private opinion, this being made clear in the evidence before the final commission.

Turning attention now to Roorkee, it is certain that the post of principal of Thomason College is in many points very similar to that of president of Coopers Hill, but in judging the worth of any precautions taken to prevent a repetition of the Coopers Hill catastrophe, considerable difficulty is at once experienced by reason of the scanty information of any real educational value which is available for the purpose. The annual report written by the principal is of very doubtful value; it may or may not contain the professional opinions of the teaching staff; the fact seems always carefully concealed. There is certainly a college council consisting of these members of the staff but, from the mention made of it in the reports, it meets at very irregular intervals and deals usually with matters of only minor importance. Furthermore, from these same reports, we gather that there are serious grounds for believing that the system of violent oscillation experienced at Coopers Hill is being sympathetically reproduced at Roorkee. Thus, in the report written by Colonel Clibborn in the calendar for 1900, we read in connection with the engineer classes that their revised course "has so far proved satisfactory, but will have to bear the test of a couple more years' actual practice before being finally confirmed." In the calendar for 1902, we read a condemnation of this time-table and system of fortnightly examinations which is stated to have proved "most unsatisfactory!" Thus the system which to one principal appeared satisfactory is condemned by his successor, newly arrived at the college, in the first report which he writes! We consequently feel no surprise when we read in the next report that the new system has so far "run smoothly and proved eminently satisfactory!" From the reports by Colonel Clibborn for 1900 and 1901, we learn that the college has been furnished with a 100-ton metal-testing plant by Messrs. Armstrong, Whitworth and Company, which is a duplicate of one in Woolwich Arsenal. In the report for 1904 by Major Atkinson, we read that "the installation of the Buckton's metal-testing machine will considerably increase the range of useful work possible." The cost of these machines cannot be less than £500 each, and we wonder when we shall read of the approaching installation of a third. We are justified, we think, in regarding this system of management as conducive to considerable oscillation and productive of much waste of valuable time and money. We note also that the college staff contains but one demonstrator, though much space is given, in the reports, to accounts of physical, chemical and electrical laboratories, while some reference is made

TIPPLE, E. F.—*contd.*

to a mechanical laboratory. We cannot help feeling that we should very much like to know the precise educational value of the work done in these laboratories and how the solitary demonstrator fills in his time! Much parade has been, and is still being, made of the developments at Roorkee consequent upon the late reorganisation due to Colonel Clibborn; but it must be borne in mind that bricks and mortar, properly and artistically arranged, make a great show; and from an educational point of view the annual reports of this institution are by no means hopeful reading to those who have real educational efficiency at heart and can appreciate the lesson of Coopers Hill.

APPENDIX I-C.

[*Extract from the minutes of the Allahabad University senate meeting, held on the 14th January, 1905.*]

The Vice-Chancellor, the Hon'ble Sir George Edward Knox, Judge of the High Court, United Provinces, India, in the chair.

The Vice-Chancellor, raising the question of "the advisability of the abolition of the faculty of engineering," stated:—"As the Senate stands constituted at present, it practically means that the faculty of engineering ceases to exist."

It was then pointed out that—"There has never been a meeting of the faculty, not because the members did not take an interest in engineering, but because the College of Engineering at Roorkee is not what such an institution should be. Roorkee College, as an educational institution, is very far from being satisfactory, and the responsibility for this rests upon the Government. It is mainly officered by Royal Engineers who have had no special training for their work. Until this College is thoroughly reformed, and its work put upon a sound educational basis, we, as a university, ought to refuse to give it recognition and hence to decline to establish a faculty of engineering."

APPENDIX II.

MINUTE ON TECHNICAL EDUCATION IN THE UNITED PROVINCES, 1909.

(*1*) *Development.*

Early developments.

It is possible to trace in India the existence of an official recognition of the need for technical education so far back as the well-known educational despatch of 1854, and the development of this branch of education in England has been to some extent reflected in Indian educational policy from that date.

City and Guilds Institute.

In England the chief success of technical education in connection with industrial manufactures, dates from the establishment of the City and Guilds of London Institute in 1878 and the opening of the Institute's technical colleges in 1881-3, to which early official attention in India was directed by the Madras Technical Scheme of 1885. Up to the present time, however, nothing of a corresponding nature has been started in the United Provinces, and the chief institution concerned with higher technical education has been the Engineering College at Roorkee.

Thomason College.

The Thomason College, Roorkee, is the oldest of the Indian engineering colleges, dating from 1847, and it has been the most successful in training men for employment in the Public Works Department. Several eminent engineers have received their education at this college, which has always held a leading position in connection with technical education in India.

In 1890 Sir Auckland Colvin appointed a commission to consider the developments required in this branch of education, and in an exhaustive minute, dealing with the subject and embodying his instructions, drew attention to the fact that—

Colvin Committee, 1891.

> "there exists at Roorkee a Government engineering college and workshops and it seems probable that we have here, subject to such further developments as may be found necessary, the nucleus of the instruction necessary."

TIPPLE, E. F.—*contd.*

In his report upon the findings of this commission, he wrote— Its findings.

"The recommendations of the committee may be divided into two distinct classes: first, those which it is possible to carry into effect with little or brief delay; and second, those which are in great measure necessary to the full carrying out of the first category, and partly independent: but which all admit of being postponed for more mature consideration. The recommendations which fall into the first of these two classes are first, the reorganisation of the Thomason Engineering College; secondly, the institution by the Education Department or by the University, of a school final examination for the modern classes of high schools; thirdly, the establishment of industrial schools at Roorkee, Lucknow or Allahabad."

"The recommendations which fall under the second category are these: first, the establishment of a school of art at Lucknow; second, the establishment of an agricultural school at Cawnpore; third, the establishment of a teachers' central training college at Allahabad."

As a result of these recommendations, the status of the Thomason College was materially changed and a thorough reorganisation of the institution was commenced. The College, which had previously been solely concerned with the recruitment of the Public Works Department under which it was managed, was transferred from that branch of Government service to the Education Department, with a view to extending its sphere of usefulness in connection with the higher branches of technical education generally. The teaching staff, particularly in its higher ranks, was considerably augmented; increased instructional accommodation was provided; well equipped workshops were erected, and extra classes inaugurated. Furthermore, industrial schools were started in various centres, notably in Lucknow, and it was arranged that these should be periodically inspected and reported upon by the principal of Thomason College. These material changes, which first began to take effect in 1896, were continued by successive Lieutenant-Governors, until it was authoritatively stated by the Government of India, when sanctioning a further increase of educational expenditure at Roorkee, that the College was— Scheme to produce a co-ordinated system of technical education.

"developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces."

The whole history of this later period of the development of Thomason College clearly shows that it was intended to establish at Roorkee, upon a broad and thoroughly scientific basis, an educational centre for higher technological work, which should be in touch with industrial schools for low-grade work suitably scattered throughout the provinces. Moreover, this intention was supported by the local Government under successive administrations, with the approval of the Government of India and the sanction of the Secretary of State. Thomason College and industrial schools.

The success of these intentions was dependent upon an efficient educational organisation coming into existence at Roorkee, whence the required stimulative influence was to be exerted on the centres for low-grade work distributed through the provinces; by this means a suitable field of recruitment for the higher institution would have been produced and a complete system of technical education established. Such an organisation would have ensured the college and the schools for the lower branches of technical instruction developing *pari passu*, the grades of technical education being properly differentiated and the whole scheme forming an integral part of the general educational system of the provinces, with which it was intended to join through the primary schools and the modern side of the high schools. The failure to achieve these desirable results has been entirely due to the inadequate attention given to educational details. Importance of Thomason College in connection with this scheme.

(2) *Maladministration.*

The successful development of the industrial schools depended largely upon the attitude adopted by the authorities at Thomason College, by whom these schools were periodically inspected and reported upon to Government.

The continued unsatisfactory state of these schools led to the appointment of a committee in December, 1901, to examine the question of their proper development, the president of this committee being the principal of Thomason College. This committee Unsatisfactory condition of

TIPPLE, E. F.—*contd.*

ıdustrial chools.

collected much valuable information concerning the need for these schools, their existing organisations, etc., but the educational inferences drawn from these, and the methods suggested for the improvement of the schools were completely discredited by the Government of India in its resolution dated 14th January, 1904. It is there shown that in the opinion of the Government of India the Committee failed "to distinguish sufficiently between a school and a commercial undertaking," and in regard to the main proposal for improvement, it is stated that—

ommittee f Enquiry, 901.

ts findings iscredited y Governent of ndia, 1904.

> "The Government of India are unable to find in the argument advanced by the committee, in the example of other countries, in the opinions of expert witnesses or in practical experience in India, any reasons which would justify them in sweeping away the present industrial schools and substituting the system* described in this report."

ts reflection n Thomason ollege.

The Government of India very clearly show that overwhelming educational authority of recognised standing was directly opposed to the more important findings of the Committee presided over by Colonel Clibborn, Principal of Thomason College, 1892-1902. Such facts indicate that the educational organisation at Roorkee during this critical period was in charge of an officer quite unequal to the larger duties placed upon him under the Colvin Scheme of 1896.

Colvin cheme rustrated *vide* Appendix A).

A scrutiny of the college reports and records shows that the only extensions of the educational work actually started at Thomason College, during 1896-1906 were distinctly of a low grade, and consequently the college instead of becoming, as was intended, an efficient director of industrial schools, became, in actual fact, only their rival, a state of things never contemplated under the Colvin Scheme. The management of Thomason College alone can be responsible for allowing educational affairs of such importance to have drifted into such a state of chaos during ten years. This has been solely due to an utter disregard of genuine educational interests.

Failure due to inadequate attention being given to educational details.

The management of the college under the Colvin Scheme was vested in a committee consisting of the Chief Engineer to Government, United Provinces (Buildings and Roads), the Director of Public Instruction, the Manager of the Oudh and Rohilkhand Railway, the Locomotive Superintendent, Oudh and Rohilkhand Railway, and the Principal. It must be noticed that there are only two educational officers on this list, and that they are both administrative officials, consequently educational interests are very inadequately safeguarded under this system of management.

Partial recognition of this by Government.

This fact was recognised by the local Government in 1901 when they appointed a college council to be associated with the principal "in regulating the courses of studies, the selection of text-books and other matters which cannot be conveniently and effectively dealt with by the Committee of Management." The formation of this Council indicated Government's desire that effective control of educational details of the college work should be placed in the hands of officers actually in touch with such work; but the good intentions of Government were frustrated through the defective constitution accorded to the Council. Three out of the five original members were only subordinate officials; important branches of the educational work were unrepresented; no genuine attempt was made to safeguard educational interests, and the power of veto bestowed upon the principal rendered the Council useless even for the proper co-ordination of the college educational work.

Government's remedy inadequate.

Protest by Allahabad University.

The evil effects of this system were severely criticised in 1905 when the Allahabad University abolished their Faculty of Engineering, the reason for the abolition being emphatically stated before the Senate in the following words:—

> "Because the College of Engineering at Roorkee is not what such an institution should be. Roorkee College, as an educational institution, is very far from being satisfactory, and the responsibility for this rests upon the Government. It is mainly officered by Royal Engineers who have had no special training for their work. Until this college is thoroughly reformed and its work put upon a sound educational basis, we, as a university, ought to refuse to give it recognition and hence to decline to establish a faculty of engineering."

* The report especially urged the introduction of the Casanova system, which, it should be noted, was primarily intended for criminal populations near Naples.

TIPPLE, E. F.—*contd.*

It follows from all this that the Colvin scheme for the efficient reorganisation of Thomason College and the development of industrial schools has been rendered abortive; and that the increase of expenditure incurred at Roorkee has up to date been educationally unremunerative, solely by reason of the ineffectual precautions taken to secure efficient educational control of the details connected with the complete formulation of the actual scheme. Summary of situation.

(3) Future outlook.

A consideration of the above facts shows that before the formation of the College Council in 1901, the educational experience gained by responsible members of the teaching staff at Roorkee was a wasted asset even so far as the college organisation itself was concerned. Furthermore, that with the institution of a council, matters were but slightly improved for internal administration, and that its weak constitution, combined with the power of veto, entirely prevented this same asset being utilised in connection with the problems of technical education generally. Educational experience a wasted asset.

This situation now forms a serious menace to the future success of any general system of education aiming at the industrial development of the provinces as a whole. The Lieutenant-Governor, in his convocation address at Allahabad on November 14th, 1908, said:— Government's acknowledgment of Allahabad protest and of its influence on Nain Tal Conference, 1907.

> "I wish to see the University extend its influence over other forms of education with which it has now no concern. Holding this view, I think it is a pity that the Faculty of Engineering has been abolished, and that the University does not extend its help to the Thomason College at Roorkee. The result of this indifference was that at the sittings of the Industrial Conference at Naini Tal last year, there was a very pronounced feeling of opposition to the suggestion that it would be desirable to secure the affiliation of the technological institute, when established, to the University. I believe that a somewhat similar feeling has led to the determination of the agricultural college to be a thing apart from the University."

Such remarks as these indicate the existence, in the United Provinces, of a highly dangerous state of affairs in connection with educational administration, more particularly in view of the observations made in the Allahabad Senate at the time of the abolition of the Faculty of Engineering. These have been already quoted and clearly show that the abolition in question was in effect a protest by educationalists against the state of affairs existing at Roorkee, and that the University, far from showing indifference, took the only course possible when endeavouring to rouse the local Government to a proper sense of its own responsibility in the matter. Furthermore, the position indicates that the breach between the University and technical education is widening instead of narrowing and that this is likely to continue until the Thomason College be placed upon a thoroughly sound educational basis. Failure to effect this is already responsible, through the maladministration of the Colvin scheme, for ten years' loss of time in the development of industrial schools; further continuation of the existing state of affairs forms a serious indictment against Indian educational policy at the present time. University protest misunderstood. Gravity of situation a serious indictment against Indian Educational policy (*vide* Appendix B).

The Naini Tal conference of 1907 has resuscitated the Colvin proposals for industrial schools (*vide* Government resolution on Education in the United Provinces, dated 7th January, 1908, Sir John Hewett's budget speech, 1908, and his convocation address at Allahabad on November 14th, 1908, in which allusion is made to industrial schools, experimental weaving schools, a school of design and a school of carpentry). There is consequently every reason to suppose that these proposals, forming part of a continuous policy, are educationally sound, but as already indicated, their successful issue is dependent upon an efficient educational organisation coming into existence at Roorkee. The resolution of the Government of India, dated January 14th, 1904, clearly shows that "the opinions of expert witnesses" have in the past been ignored by the authorities at Roorkee with disastrous results; a further continuance of this policy will now endanger the whole future of technical education, and indications are not wanting to show that this danger is a very real and imminent one. Naini Tal Conference, 1907, resuscitates Colvin proposals for industrial schools. A return to the position of 1899.

The proceedings of the Naini Tal conference having been made strictly confidential, it is impossible to subject them to criticism in detail, but the Government Resolution on Proceedings of Naini Tal

TIPPLE, E. F.—*contd.*

Conference confidential.

Indication of its proposals in relation to higher technical education.

Education in the United Provinces, dated January 7th, 1908, states that within the next quinquennium the Lieutenant-Governor—

> "hopes to see the Thomason College developed into a technological institute for engineering purposes and a technological institute for chemical matters established at Cawnpore."

It is to be presumed that the separation, thus advocated, of two intimately connected branches of technical education is based upon the findings of the Naini Tal conference. The proposal, however, to locate institutes for engineering and chemical technology respectively at Roorkee and Cawnpore, two centres some four hundred miles apart, is so directly contrary to the successful example of other countries and so diametrically opposed to the results of past educational experience in India, that all interested in the future of technical education in this country must gravely question the wisdom of such a proceeding. This experience has clearly shown that, in India, the isolation of the scattered colleges of the universities has proved a serious obstacle to the maintenance of satisfactory standards for higher educational work; also Dr. Morris Travers, in his report on the Institute of Science, is strongly opposed to the policy of founding isolated institutions of special branches of applied science.

Results discouraging in the light of past educational experience.

The intimate connection existing between engineering and chemical technology may be seen in the working of the City and Guilds of London Colleges, or the engineering departments of modern universities, where students of engineering and industrial chemistry share many courses of instruction during the earlier period of their training. Work in engineering and chemistry is arranged for both classes of students, so that it is impossible for anyone familiar with the educational details concerned, to realise how the separation suggested can be logically justified. The development of a chemical side at Roorkee has already been recognised as necessary and has been placed in charge of an officer specially appointed by the Secretary of State in 1904; with the foundation of a chemical institute at Cawnpore, the necessity for an engineering side there will become equally apparent. Thus, instead of being two connected branches, Roorkee and Cawnpore will become two distinct and rival centres, and in view of the general level of scientific educational attainment at present existing in India, such rivalry cannot prove stimulative in its action. At least one centre will be degraded and the cause of higher technical education will correspondingly suffer.

Need for caution.

At the present juncture it is imperative that technical education should be adequately safeguarded from those dangers which have proved so disastrous in the past to higher education in India, and this can only be secured by paying most careful attention to the educational details of any proposals formulated. Neglect to do this at Roorkee has led to a series of failures in connection with the industrial classes at Thomason College extending over a period of ten years; further neglect will now lead to incalculable harm in the future.

(4) *Reforms needed.*

Present position summarised.

The preceding sections of this minute deal with the confusion which has arisen in connection with the development of technical education in the United Provinces; they show that this state of confusion is directly due to the unsatisfactory educational condition of the leading technical institution of the country. The inefficient educational organisation at Thomason College has led to a want of proper discrimination between high and low grade work; it has prevented the development of efficient industrial schools; it has nullified the findings of the Colvin Committee, which were educationally sound, and it is producing a widening estrangement between the University and technical institutions in these provinces.

rimary nportance reforms Thomason llege. stem vocated.

It now remains to indicate methods by which these evils may be remedied and future progress rendered possible. For this purpose the primary reform necessary is the placing of Thomason College upon a sound educational basis, since by this means alone can a proper co-operation between the University and technical institutions be assured.

During the last ten years the educational work at Roorkee has been gradually arranged under five main branches; applied mathematics; civil engineering; electrical engineering; mechanical engineering; industrial chemistry. In order to ensure a proper co-

TIPPLE, E. F.—*contd.*

ordination between these branches and adequately to safeguard future developments, the following reforms are now imperative :—

(*a*) Each of these five branches should be placed under a properly qualified professor regularly appointed to the Indian educational service.

(*b*) These five professors should form a board of studies authoritatively constituted and officially recognised by Government.

(*c*) All matters of moment affecting the college educational work should be laid, with due notice, before this Board for consideration.

(*d*) Minutes of the proceedings should be carefully recorded by the member appointed Secretary and should be filed in the offices of the college and of the Director of Public Instruction for information and reference.

By these means further neglect of important educational details of any schemes for the improvement of technical education in the United Provinces could be avoided ; due consideration of such details by educational authorities, familiar with them, would be assured ; the true position of the college in the general educational system of the provinces could be definitely fixed, and the present confused state of technical education could at last be ended.

E. F. TIPPLE.

P. P. PHILLIPS.

APPENDIX II-A.

[*Extract from "The Pioneer," 12th February, 1908.*]

ROORKEE COLLEGE AND TECHNICAL EDUCATION.

The future of the Thomason College, Roorkee, at the present juncture is a matter worthy of careful consideration from all those who are genuinely interested in the establishment of a sound system of technical education in this country. The development of the college from a mere training school for artisans about 1845 up to the time of the Colvin Committee in 1891 is too well known to need repetition, and so far as the future is concerned it is the trend of later events that is of primary importance. About 1896 the college was transferred from the Public Works Department to the Education Department, on the recommendations made in the Colvin reports, and since then successive Governments have been continually entertaining large and expensive schemes for the development of the educational work of this institution. The above-named reports clearly indicated that the college was recognised as suitable for development into an institute for higher technical education, and in August, 1903, it was definitely stated by the Government of India, as a reason for sanctioning a large increase of expenditure at Roorkee, that the Thomason College "is developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces." It is of some interest, therefore, to note how this development has really been conducted in recent years, more especially in view of the important bearing which this must have upon any general scheme of technical education devised for the United Provinces.

Previous to 1896, Thomason College was concerned only with the training of public works engineers and subordinates, together with certain military survey classes. Under Colonel Clibborn the courses for the engineer classes were improved at some considerable expense, but despite costly installations of machinery these courses do not even now contain any engineering laboratory work such as is considered to be of fundamental importance and absolutely indispensable at all high grade engineering colleges in Europe. Moreover, the actual extension of the educational work beyond its previous limits was effected in 1896 by the introduction of industrial and mechanical apprentice classes which were intended to provide for the education of selected students from the provincial industrial schools. This evidently was an attempt to form an educational ladder by means of which capable students might climb from low grade technical schools to a high grade technical institute. Such a scheme was admirable in its conception, but for success it

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was dependent upon the establishment of efficient industrial schools, while this itself was further dependent upon a proper recognition of the functions of such schools and of their relation to a higher grade institute. The ideas of the late principal of Thomason College upon these important educational matters have been already sufficiently discredited in the Government of India's resolution of January, 1904, upon the report of the Committee on Industrial Schools over which Colonel Clibborn presided, and consequently it is not surprising to find that the above classes have never hitherto justified their existence. That this is so is evident from the college reports, while the courses of study and the time-tables show that these classes are all occupied with technical work of an extremely elementary grade, and that consequently, so far as they are concerned, the Thomason College is merely a low grade technical school, despite its expensive machinery and costly equipment.

A further development was introduced in 1906 when the technical classes were started, of which but few details are at present available. The entrance qualifications, however, are considerably below the engineer class standard, while the actual courses can scarcely be differentiated from those of the mechanical apprentice class, and consequently they are not likely to prove more successful than their predecessors in spreading really sound technical education. It is thus clear that the only new classes introduced at Thomason college since 1896 are such as should properly belong to technical schools, while the engineer classes themselves do not derive the full benefit which they should receive from the increased expenditure which has been incurred. At a technical school great attention must be paid to workshop practice, the scientific work done is necessarily elementary, and the technical instruction given should be largely of a popular kind. At a technical college, on the other hand, workshop practice, though still necessary, is relatively of less importance, the engineering laboratory taking precedence, while the scientific and technical work must necessarily be advanced and of a highly specialised character. Consequently, although much money has been spent and is being spent at Roorkee upon machinery, laboratories and workshops, yet the actual educational development, by which alone such expenditure can be justified, would be much more accurately described as a degradation of the educational work of an engineering college.

The whole history of this later period of the educational activity of Thomason College indicates the urgent need which exists for the establishment of efficient industrial schools for low grade technical training at various centres throughout the provinces. By this means alone can a suitable field of recruitment be obtained from which to draw students capable of benefiting from the courses provided at a technical college. The only higher technical education for which there is a recognised demand at present is that which admits to Government service, and in the light of past experience in India this is a danger against which adequate provision must be made by building up a system of technical education upon a sure foundation. Attention is now being paid to the proper co-ordination of primary and secondary education in the schools of these provinces, and if this co-ordination is to be complete it must include a suitable arrangement of technical schools where adequate provision can be made for full-day pupils and half-timers. Money spent now upon the furtherance of such schemes will be money well spent in the ultimate development of higher technical education, but until a sound foundation has been laid by the establishment of a number of efficient industrial schools for low grade technical training, no satisfactory system of higher technical education can be reared. Clearer proof of this cannot be afforded than that which is obtainable from a scrutiny of the Thomason College developments, and the results which they have achieved during the last decade of that institute's history.

APPENDIX II-B.

[*Extract from "The Pioneer," 28th November, 1908.*]

SCIENTIFIC RESEARCH AND INDUSTRIAL DEVELOPMENT.

It is safe to say that chemical science in any, but its purely educational, aspect is practically untried in Upper India. Notable exceptions are the sugar works, whose rise of recent years in and around the United Provinces is such a hopeful sign. These, in many

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cases employ chemists as a part of their regular factory staff, but beyond this a systematic chemical investigation of the latent resources of the United Provinces has still to be undertaken. It is surprising that it should be so in a country with an almost inexhaustible supply of the raw material for many technological processes at the best only superficially investigated. That there is no doubt of it is apparent to all who have followed the proceedings of the Industrial Conference that met at Naini Tal in August, 1907, under the presidency of the Lieutenant-Governor, and Sir John Hewett's subsequent speeches on the industrial situation that have from time to time appeared in the press. There are welcome signs that efforts will not be wanting on the part of Government to provide funds; and all well-wishers of India will hope that the response by the country may be vigorous and sincere when a workable scheme of technical instruction and research is put forward.

But the best will in the world cannot save from failure any scheme initiated without a thorough grasp of the methods used to-day in investigating chemical industrial problems and of the value of research in this connection. The chemist's work in relation to industrial development is so imperfectly understood both by the official and public mind of India that it is likely that some at least of the schemes proposed will not bear the impress of wisdom. Mistakes there are bound to be, but it is by no means necessary that these should be of a fundamental nature at the very outset, if advantage is taken of the experience of other countries and a sound critical judgment exercised. It is a point of importance to recognise at once the proper value of research as a national asset. The investigation of many leading questions in this field cannot, under present conditions, be left to private enterprise, and it is the duty of the Government, once the importance of the subject has been recognised, to set aside a certain sum of the public money, not an extravagant one, for this purpose. Money thus invested may not yield a return to-day or even to-morrow, but that it will come back with interest some day is as certain as the rising of the sun.

A classical example of the ultimate value of research is provided, unhappily for this country, by the circumstances that led up to the threatened extinction of natural indigo by its synthetic rival. The story is an interesting one. Thirty years ago a German chemist, Dr. Adolf von Baeyer, working quietly in his laboratory at Munich, succeeded in preparing a few grammes of indigotin, the colouring matter of natural indigo. The materials he used were at that time chemical curiosities rather than merchantable commodities, and it was a matter of conjecture if these could be produced cheaply enough to enable synthetic indigo to be put upon the market. The national value of Baeyer's discovery was, however, at once recognised, and an army of chemists set to work to investigate the question from the point of view of the raw materials at Germany's disposal. The sad plight of the Bihar industry is a direct result of their work. Even now the lesson driven home by so many hard knocks is still unlearnt, and the planters, who have everything at stake, are inclined to accept advice which condones their past negligence of the scientific side of their industry rather than that, less flattering it is true, which points the way to substantial improvement. Again the prominent position suddenly attained by Java in the sugar trade can be traced almost directly to the intelligent use by the Dutch of the resources of chemical and biological science; and the employment of such workers as Kobus and Prinsen Geerlegs in the interests of the industry. It must not be inferred that the panacea to fly to for industrial pre-eminence is the importation of experts pell-mell into the country. The bone-button trade is *in extremis*; in a state of panic a button expert is sent for by the next mail, and if the button trade does not come up to expectation at the end of two years, he is sent home again, and science is said to be of no use. It is not suggested that anything so exaggerated could happen in India, but a modified form of the fallacy is possible and needs carefully guarding against.

It will be well for those who have the interests of technological development at heart to remember that the most essential part of it, applied research, only thrives in its own atmosphere, and any scheme will lack an essential feature of success that does not provide for first-class scientific control directly under Government. The day of the well-intentioned amateur is over in India. Specialisation has reached a point where it is no longer possible for a man to turn his attention at a moment's notice from military command

or the management of an indigo concern (to take hypothetical cases) to the control of scientific workers and technical instruction. Industrial problems requiring scientific solution must be approached in a scientific attitude of mind, and those responsible for advising Government, will do well to see that their first effort is to secure this.

APPENDIX III.

MINUTE ON INDIAN EDUCATION WITH SPECIAL REFERENCE TO THE REORGANISATION OF THE INDIAN EDUCATION DEPARTMENT, 1913.

Preface.

This minute is concerned solely with recent educational developments in India and their past history. In every case full reference has been given for the statements made. The subject appears to be of sufficient consequence to deserve consideration solely on its merits, and it is thought that the introduction of names may tend to divert attention from the highly important question of *what is right* to the relatively insignificant question of *who is right*? For this reason the minute is issued anonymously.

Historical Survey.

In March, 1904, a resolution was issued by the Governor-General in Council, giving a summary of facts and figures concerning the history and growth of education in India.(1) Therein it is stated that—

Education on western lines introduced in India in 1854. Previous tendency of British administration to leave traditional methods of instruction undisturbed. Inherent disadvantages of such methods.

> "Education in India, in the modern sense of the word, may be said to date from the year 1854, when the Court of Directors of the Old East India Company, in a memorable dispatch, definitely accepted the systematic promotion of general education as one of the duties of the State, and emphatically declared that the type of education which they desired to see extended in India was that which had for its object the diffusion of the arts, science, philosophy, and literature of Europe; in short, European knowledge. . . . . The first instinct of British rulers was to leave the traditional modes of instruction existing in the country undisturbed and to continue the support which they had been accustomed to receive from native rulers."

To this end provision had been made, so far back as 1813, for giving regular assistance from public funds. These traditional modes of instruction, however—

> "Mohammedan no less than Hindu, assigned a disproportionate importance to the training of the memory, and sought to develope the critical faculties of the mind mainly by exercising their pupils in metaphysical refinements."

Nature of impulse which produced the Educational despatch of 1854. Foundations of existing Educational Department laid. Character and development of its work. Comparative statistics

The impulse towards reform which resulted in the despatch of 1854 came from two directions: the need for public servants with a knowledge of the English language, and secondly, the missionary influence exercised in favour of both English and vernacular education.(2) In accordance with the policy outlined in this despatch, a department of Public Instruction was subsequently created; universities were founded in the presidency towns; training schools for teachers were established; existing Government educational institutions were increased, and a system of grants-in-aid was introduced to encourage local effort.

The policy thus laid down in 1854 was re-affirmed in 1859, when the administration was transferred to the Crown.(3)

The following figures serve to indicate the progress made upon the lines indicated. The universities of Calcutta, Madras, and Bombay were incorporated in 1857, and those

(1) "Indian Educational Policy," published in book form in 1904.
(2) *Ibid*, para. 4.
(3) *Ibid*, para. 6.

of the Punjab and Allahabad in 1882 and 1887. The growth of schools and colleges proceeded most rapidly between 1871 and 1882, and by the end of this latter year there were 2¼ millions of pupils under instruction. According to the last available Quinquennial Report on Education in India, 1902—7,(1) there were in 1902, 3,204,336 pupils in 97,854 primary schools, and 622,768 scholars in 5,493 secondary schools, while the number of colleges was 191 with 23,009 students. Thus including special schools, technical and industrial schools, schools of art, normal schools for teachers, etc., the total number of schools and colleges for public instruction amounted to 104,622 with 3,886,493 pupils, and if private institutions be added, the total number of scholars known to the Education Department reached 4,521,900, necessitating an expenditure exceeding 400 lakhs, out of which 177 lakhs were provided from public funds, the balance being obtained from fees, endowments, and private sources. Thus the total cost to the public funds fell short of £1,200,000. showing its growth during quinquennium 1902 to 1907.

According to the same report the population of British India was in 1907, 229 millions scattered over an area of 964,073 sq. miles, and the activities of the Education Department throughout the country were distributed in the following way at the end of the quinquennium:—3,937,866 pupils in 112,930 primary schools, 713,342 scholars in 5,898 secondary schools, and 25,168 students at 182 colleges; the total number of public educational institutions was 121,336, accommodating 4,744,480 pupils, this latter number rising to 5,388,632, if pupils at private institutions be included. The total cost to the country of this educational system was 559 lakhs of rupees, out of which 296 lakhs (£2,000,000 nearly) represented the expenditure from public funds.

These figures for the years 1902—7 are of peculiar importance because they record the educational results which have sprung from the application of the common policy of educational expansion and reform outlined authoritatively in 1904 by the Governor-General in Council, and followed continuously from that date in all the provinces of the Indian Empire. Their importance.

Position examined.

The same resolution, in a section dealing with the merits and defects of the existing system,(2) states that— Advantages which have resulted.

> "it is almost universally admitted that substantial benefits have been conferred upon the people themselves by the advance which has been made in Indian education within the last fifty years; that knowledge has been spread abroad to an extent formerly undreamed of . . . . and that there has been a marked improvement in the character of the public servants now chosen from the ranks of educated natives, as compared with those of the days before schools and universities had commenced to exercise their elevating influence. But it is also impossible to ignore the fact that criticisms from many quarters are directed at some of the features and results of the system as it exists at present, and that these criticisms proceed especially from friends and well-wishers of the cause of education. Its shortcomings in point of quantity need no demonstration . . . . In point of quality the main charges brought against the system are to the general effect (1) that higher education is pursued with too exclusive a view to entering Government service, that its scope is thus unduly narrowed, and that those who fail to obtain employment under Government are ill fitted for other pursuits; (2) that excessive prominence is given to examinations; (3) that the courses of study are too purely literary in character; (4) that the schools and colleges train the intelligence of the students too little, and their memory too much, so that mechanical repetition takes the place of sound learning. . . . ." Defects of the system enumerated.

Further, it is stated in the same resolution(3)—

> "that Government service is regarded by the educated classes as the most assured, the most dignified, and the most attractive of all careers: and that the desire on the part of most students to realise these manifold advantages as soon and

(1) *Vide* Government of India, 5th Quinquennial Review, Vol. II, page 57, table 7; and page 60, table 16.
(2) "Indian Educational Policy," para. 8.
(3) *Ibid*, para. 9.

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as cheaply as possible tends to prevent both schools and colleges from filling their proper position as places of liberal education."

These defects traced to two causes.

An examination of these defects in the light of the past history of Indian education very clearly indicates that they have sprung from two main sources, both lying beyond the control of the Education Department itself: (1) the primary motive which prompted Government to set up the existing system in 1854, and (2) the traditional modes of instruction which had previously held sway throughout the country. Attention has already been drawn to the fact that the first impulse towards educational development arose from the urgent demand that existed for clerks in Government offices. It was largely in order to meet this demand that Government formulated their educational policy and decided for the first time to take a direct part in the educational work of the country. The defects in the quality of education summarised under the headings (1) and (2) in the paragraph quoted above are obviously of a character to be expected from an educational system admittedly introduced with the avowed object of increasing the supply of public servants available in the country; while those grouped under (3) and (4) evidently result from the original inherent educational tendencies of India herself. The scheme introduced in 1854 appealed naturally to the majority of thoughtful Indians whose countrymen from time immemorial have been accustomed, under their native rulers, to regard positions such as dewan or wazir as the highest prize obtainable by an educated man. In consequence the supply very soon outstripped the demand, and year by year the number of educated Indians unable to find employment under Government has largely increased. The natural outcome of such a system was a feeling of grievance which rapidly developed into discontent.

(1) Initially narrow educational outlook of Government.

(2) Inherent defects of India's traditional educational methods.

Education system, resulting from this narrow outlook, unsatisfactory.

During the unfortunate years of seditious disturbance preceding 1909 much of the blame for such outbreaks was justly laid upon the educational *system* of the country. It must be noted in this connection, however, that responsibility for this system rests upon the administrative Government by whom it was originally set going, and not upon the Education Department, which is merely a part of the system introduced, and which, in spite of the initial administrative bias and the inherent traditional tendencies of the country, has admittedly produced a marked improvement in the type of public servant educated in the country.

Government's lack of confidence in educational officers.

The effect of this bias, the existence of which is indicated in the original motive which prompted the despatch of 1854, is further illustrated by the following significant fact. During the unfortunate period mentioned above, Government possessed so little confidence in the educational system for which it was responsible, that it felt constrained to issue circulars drawing the attention of its educational officers to a detailed list of the most obvious duties devolving upon them to assist in combating the propagation of seditious ideas.

Narrow outlook results in secretariat bias against the adoption of a liberal educational policy.

The above evidence is sufficient to indicate that in the past there has been prevalent in secretariats a very one-sided view of the advantages to be derived from education, and it suggests that the administrative reluctance to introduce a really liberal and progressive educational policy has been due to the idea that such a policy would make the task of Government more difficult, rather than that it would render the country more worthy of its position in the Empire and increase its real need for a highly specialised and advanced system of administration.

Further, there is a very strong opinion in Indian secretariat circles that education offers the most suitable field for the exercise of India's nascent powers of self-government, and that consequently the chief educational need of the country lies not so much in a strong and efficient Education Department, organised on lines which have recommended themselves in the western world, but rather in the encouragement and gradual development of India's power to evolve an educational system for herself under the fostering care of non-expert secretariats. This is an obvious reversion to the initial position when—

> "the first instinct of British rulers was to leave the traditional modes of instruction existing in the country undisturbed."

Definite recognition.

The unsatisfactory condition of educational affairs in India has been the subject of a note by Sir Henry Craik, and since it bears upon the points mentioned above, the opinions

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expressed by this eminent and independent authority are of great interest. Writing upon the subject after his tour in India in 1907-08, Sir Henry Craik stated(1)— Opinion of this by an independent educational authority.

"It is the system that is wrong—wrong in its original conception and faulty in its present administration. Education has no independent place in the central secretariat and all new schemes must be submitted through an alien department."

The same writer, referring to the evidence before the Decentralisation Commission, also stated that :—

"I had the advantage of hearing some of the educational evidence placed before the Decentralisation Commission. The chief witness * examined (of whom I knew nothing before) seemed to me to give his evidence with admirable force, and was evidently in touch with all that is soundest in educational theory at home. It is not, perhaps, surprising that his questioners were not so conspicuously conversant with the subject; and the cross-examination of one of the commissioners—himself a civil servant in India—served what was to me the useful purpose of showing a spirit which, so long as it prevails in official quarters, will, in my opinion, effectually bar the way against any real educational reform. Educational administration must have its own independent position before it can make any bold and effective advance."†

Furthermore, during the past few years events in India have caused considerable attention to be focussed on Indian educational affairs, even in England. When the unsatisfactory condition of these affairs came to be realised, the question of the appointment of a special Royal Commission to conduct an enquiry received considerable attention. Mr. Montagu, Under-Secretary of State, replying in the House of Commons to a question put by Sir Philip Magnus, said :— Suggested advisability in high official quarters of an enquiry by a Royal Commission.

"The necessity for an improved system of education in India demands comprehensive and urgent recognition. Lord Morley is unable at present to promise the appointment of a committee or Royal Commission, but he recognises the probable advantage of such a course."

The possibility of a Royal Commission being appointed to conduct an independent enquiry into the Indian educational system caused considerable alarm in Indian secretariat circles. The *Pioneer*, the leading conservative organ in India, which voices the views of the higher administrative service, writing in May, 1910, on Indian educational affairs, stated in a leading article(2) that— Reception of this suggestion in India.

"In England the idea seems to prevail that we are in urgent need of a brand-new educational policy. . . . . Even Lord Morley appears to share this delusion. What Lord Morley's intentions in this connection may be in the future no one in India probably even pretends to know, but it is significant, perhaps, that we should be already hearing of an eminent Oxonian scholar with qualifications for conducting an expert enquiry into our educational system. The gentleman in question is a Mr. M. E. Sadler . . . . who has had a wide experience in 'overhauling' systems of education in English towns and counties. We have no desire to belittle Mr. Sadler's attainment as a scholar or his claims to pose as an educational expert, at any rate outside India, but the point is that there is nothing to be gained and much to be lost by bringing out to India either a Royal Commission or a roving educational inquisitor. The only result of special enquiries of this kind would be to hang up indefinitely all those schemes of progress in which local Governments as well as the Government of India are particularly interested at the moment."

Such a statement from the *Pioneer* not only bears out the remarks made by Sir Henry Craik in 1907-08, but indicates the existence of a deeply-rooted bias in official administrative circles against the introduction of a really sound and liberal system of education. Its confirmation of Sir Henry Craik's criticisms.

(1) *Vide* Appendix A.
* A Member of the Indian Educational Service.
† See also Appendix Aa.
(2) *Vide* Appendix B.

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The New Department.

Official recognition of the force of these criticisms followed by hurried administrative re-adjustments in India. Real nature of adjustments exposed in Indian press.

The possibility of the appointment of a Royal Commission to conduct an enquiry into Indian education was rapidly followed by the formation out here of a department of education for the first time at the headquarters of the Government of India, but it must be noted that the Department is still "an alien department," so far as education is concerned. The Calcutta *Englishman*, writing of this Department on December 13th, 1910, stated (1) that—

Need for educational reform employed as a justification for bifurcation of Home Department.

Miscellaneous duties allotted to the so-called Education Department.

"The new Department of Education which has now been created should apparently have been in existence for years, as the educational policy of the Government of India has been subjected to more severe criticism than perhaps any other. With a properly organised department many mistakes of the past might have been avoided. Even as now constituted the Department has tacked on to it certain branches of work which do not properly belong to education. But the resolution of the Government of India creating the new Department is quite frank about the secondary object with which it has been brought into existence, *viz.*, 'for affording relief to the Home Department.' No one will question the necessity for giving the Home Department relief, at the same time the expediency of tacking on local self-government to education seems a trifle far-fetched, even on the ground that 'municipal and local bodies are responsible for no small part of the public expenditure on education.' But even accepting the principle that all matters relating to local self-government are more or less connected with education, we fail to see why the new Department should be saddled with such miscellaneous branches of work as sanitation, archæology, books, records, ecclesiastical, and a few other subjects of minor importance now dealt with in the public branch of the Home Department.....It seems to us..... that if the energies of the new Education Department are to be dissipated in controlling the subjects named above, its officers will have very little time to devote to solving educational problems."

Changes more nominal than real.

Such criticism shows that the new Department at the head-quarters of the Government of India is an Education Department more in name than in fact, and indicates that any advance, which may have been made in recent years, rests upon very insecure foundations, especially when viewed in the light of the official bias which has already been shown to exist.

The member in charge of the Department is a covenanted Civil Servant, and not an expert educationalist, while of the two joint secretaries under him, the junior alone is an educational officer, the senior being another member of the Civil Service. Moreover, the name Education Department is a complete misnomer, and could equally well be replaced by "Sanitation Department," or "Local Self-Government Department," the same also applying to the much paraded title "Education Member." Week by week and month by month the only notifications which appear in the Government of India Gazette (Education Department) deal almost exclusively with the postings of ecclesiastical and sanitation officers, while only on very rare occasions have they any reference to educational affairs.

Dangers ahead. Sanitary reform may take precedence of educational reform.

Furthermore, recent events have distinctly indicated that there is danger of educational matters being overlooked in a growing anxiety for sanitary reform, and no less a person than the Education Member himself, while presiding over an All-India Sanitation Conference, specially convened by the Education Department of the Government of India, remarked in his address to the members of the Conference, that—

"it was no mere chance that education and sanitation were grouped together under one Department."

(1) *Vide* Appendix C.

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Since this announcement there have been many stalwart advocates of the policy that sanitation should take precedence of education, and in the *Times* (1), dated February 4th, 1913, strong protests were made—

> "against the folly of allowing education to run away, leaving sanitation hopelessly behind."

Those in India, who are familiar with the prevailing condition of affairs, distinctly fear that, on the contrary, sanitation may be advanced at the expense of education. Because school authorities can, and in several instances do, undertake the teaching of the principles of hygiene, that is no reason for combining sanitation and education in a single department for purposes of administration. The great need for sanitation in India is well recognised, but this is merely a reason for placing its control in expert hands. Under existing conditions it is becoming a matter of some difficulty to determine how much of the Education Budget is for education, and how much for sanitation. Thus, in the Government of India Budget Statement for 1913, a sum of 2½ crores of rupees is set aside for non-recurring expenditure on education, and 1½ crores for urban sanitation. With regard to recurring expenditure, however, 1 crore is allotted for education and sanitation together. Now, money spent on buildings and equipment for educational work cannot be spent efficiently without proper expert advice, and a corresponding increase in recurring expenditure for up-keep; it is consequently anomalous that although so large a non-recurring grant as 2½ crores is proposed specifically for education, there is at the same time no indication of the precise additional recurring expenditure that should form the natural corollary of so large a non-recurring grant. Such methods of finance indicate an allotment of funds which cannot have been preceded by the preparation of a carefully detailed scheme of expenditure, and this is borne out by the statement made by the Education Member in the Imperial Council Chamber, Delhi, on February 28th, 1913, when he stated that—

Need for clear differentiation between expenditure on Education and that on Sanitation.

> "of the grants given for the last two years, some 71 lakhs or £500,000 sterling have not yet been disposed of."

It must be admitted that facts such as these are calculated to rouse the fears of those interested in the advance of Indian Education, and who are familiar with its history. In the past Indian Educational administration has not escaped the severe adverse criticism of expert European educationalists, and at the present time Indian educational policy fails to obtain the full confidence of those Indians anxious for the educational development of their country, as became very obvious during the discussion which took place in the Imperial Council Chamber on February 25th, 1913, when this subject came up for discussion, and much disappointment was expressed at Government's inability to lay down a fully detailed programme.

Government educational policy fails to secure either expert approval or the confidence of Indian public opinion.

Finally, the recently issued resolution, dated 21st February, 1913, dealing with the Educational Policy of the Government of India, is largely a colourless document filled with educational platitudes.(1) So far as it deals with one highly important branch, technical education, it is most deficient, and contains indications of the Government's tendency to ignore, in the case of technical education, the fundamental distinctions between secondary and higher grades, which has been productive in the past of so much confusion in the case of general education.

There is a distinct tendency in official circles to divorce technical education from general education on the ground that educational officers are not qualified to deal with so important a subject. This is largely due to the fact that educational officers are held responsible for the mistakes which have been made in the past, although it is sufficientiy clear that such officers have not been in any way responsible for the educational policy which Government has pursued. It is impossible here to avoid briefly contrasting the educational method of India with that of Japan, in which country some forty years ago the Japanese Government secured the services of a small band of English educational

Responsibility for past mistakes does not rest with educational officers.

(1) *Vide* Appendix D.

TIPPLE, E. F.—*contd.*

experts to organise both technical and general education, with a success which is too well known to need recapitulation. It is noteworthy that in its latest educational resolution,

> "the Government of India, agreeing with the great majority of the local Governments, are unable to accept the view that the Director of Public Instruction should be *ex-officio* Secretary to Government,"

Secretariat dislike of expert educational advice.

by which decision the new Education Department has shown itself prepared to continue an anomaly in the existing system of educational administration which has called forth the most severe condemnation from some of the ablest of educational experts, and Indian administrators alike.

The Indian educational service.

Official recognition of the beneficial work executed by educational officers.

It is here necessary to examine the nature of the organisation by means of which the actual work of education is carried on in India, and which, in spite of the inherent difficulties and initially wrong administrative bias already discussed, has yet been productive of—

> "a marked improvement in the character of the public servants now chosen from the ranks of educated natives, as compared with those of the days before schools and universities had commenced to exercise their elevating influence."

The resolution of 1904, from which the above quotation is taken, describes this organisation in the following words(1):—

Official description of educational officers' work in India.

> "The Education Department is divided into the superior and the subordinate services. The superior service consists of two branches, called respectively the Indian and the Provincial educational services, of which the former is recruited in England and the latter in India. The opportunities and responsibilities which work in the Department brings to an officer of this service give scope for a wide range of intellectual activity. Such an officer takes an active part in the profoundly interesting experiment of introducing an eastern people to western knowledge and modern methods of research; he comes into contact with the remains of an earlier civilisation and the traditions of ancient learning; he can choose between the career of a professor and that of an educational administrator; and in either capacity he has great opportunity of exercising personal influence and promoting the best interests of genuine education. In order that members of the Indian educational service may keep themselves abreast of the advances which are now being made in other countries in the science of education, facilities are given to them, while on furlough, to study theory and practice of all branches of education both in England and in other parts of the world. The part, already considerable, that is taken by natives of India in the advancement of their countrymen in modern methods of intellectual training will, it is hoped, assume an even greater importance in the future. If the reforms now contemplated in the whole system of instruction are now successfully carried out, it may be expected that the educational service will offer steadily increasing attractions to the best educational talent. Where the problems to be solved are so complex, and the interests at stake so momentous, India is entitled to ask for the highest intellect and culture that either English or Indian seats of learning can furnish for her needs."

It is upon officers of the Indian educational service that the main responsibility rests for the maintenance of adequate educational standards so far, at any rate, as "western knowledge and modern methods of research" are concerned. This is accomplished through the agency of Government arts colleges, professional colleges, model high schools, training schools, and the higher grade inspectors; and these form the principal safeguards for ensuring that the work represented by the figures given in educational statistics shall be of a quality which shall justify the increasing public expenditure devoted to it.

(1) *Vide* "Indian Educational Policy," para. 45.

TIPPLE, E. F.—*contd.*

In view of this, it is instructive to note that, in August, 1907, no less an authority than the late Sir Edward Law, sometime Finance Member of the Viceroy's Council, made the following deliberate statement(1) :— Misleading nature of this description clearly exposed.

"The fact is that education officers have been, with intent, kept in a distinctly subordinate position."

This statement is in startling confliction with the spirit of the quotation taken from the 1904 resolution, and lends added weight to the criticisms of Sir Henry Craik in 1908 when he referred to :—

"a spirit which so long as it prevails in official quarters will effectually bar the way against any real educational reform."

Independent evidence is not wanting to show the existence of such administrative tendencies which, during the past twenty years, have produced a steadily detrimental influence upon the Indian educational service. Thus previous to 1896, apart from certain special posts, the service, so far as concerned superior appointments, was mainly divided into four grades; the distribution of officers and salaries being as shown in Appendix F. With the reorganisation of 1896, the substitution of a time scale with personal allowances, in place of the four grades already mentioned, slightly diminished the average pay of the service, and only afforded benefit in the earlier years of service at the expense of the later. It thus tended to create an initial attractiveness during those earlier years which rapidly evanesced in the later, and it is doubtful whether such a change can be regarded as calculated to produce the best results from the service concerned. Moreover, a secondary result was to degrade the official status of the educational officer in his later years of service, since recognition in the warrant of precedence depends for educational officers upon salary, and only in exceptional cases can such officers now receive any recognition at all. Also, the actual number of Indian educational officers was reduced (*vide* appendix F) and the number of allowances was calculated on the strength of the cadres then sanctioned. Thus in 1896, twenty out of seventy-seven officers were admissible to these allowances; since 1896, however, the strength of the cadres has almost doubled, but the number of allowances has not been increased, and, consequently, the present condition of affairs is the same as would have existed under the old graded scheme, if the cadres had been doubled and the whole of the increase confined to the lower two grades. Further, the change effected a saving of over Rs. 8,000 per mensem or close upon one lakh per annum, on the cost of all superior posts in the Education Department, although it slightly increased the expenditure on the Provincial service at the expense of the Indian educational service, a movement in strict accordance with an administrative tendency, already noticed, in favour of the traditional modes of instruction existing in the country, despite the fact that these are calculated to over-develop the memory at the expense of the intelligence. Degradation of the educational service consequent upon the last reorganisation of 1896.

The main effect therefore of the 1896 reorganisation was to lower the status of the European element in the department, to diminish its prospects and to reduce its numbers(2); it is consequently difficult to regard it as other than a retrograde step. It was unquestionably necessary to increase the share which educated Indians could take in the system of public instruction spreading over their country, but to do so without taking adequate measures to ensure that the quality of instruction given should conform to European standards was to court educational disaster. Summary of the results of this reorganisation.

There is, moreover, official indication that the steps taken in 1896 were, admittedly, retrograde; thus in 1906 the Secretary of State issued the following ruling :— Secretary of State's recognition of secretariat tendency to refuse educational officers any effective control over.

"The Secretary of State desires that appointments to the directorship (of public instruction) should no longer be governed by the rules laid down in the resolution of 1896, but by those prescribed in the Home Department resolution of September 4th, 1886. The latter resolution, while not giving members of the education service an absolute claim to succeed to the post of director, contemplated that before appointing a person not belonging to the service local Governments should, in the event of their considering it desirable to fill the

(1) *Vide* "Blackwood's Magazine," August, 1907.
(2) *Vide* Appendix G.

Government's educational policy.

post otherwise than from the local educational staff, seek the assistance of the Government of India with a view to procuring a suitable selection from the Educational Department of some other province. The Secretary of State also considers it desirable that in order to provide a properly qualified successor in the event of a vacancy arising in the directorship, measures should be taken in good time to give the officer on whom the choice would most probably fall a wide experience of the working of the department in all its branches."

The post of Director of Public Instruction is an onerous one, since he is the officer responsible for the efficient working of the Department under each local Administration. The fact, however, that there should be difficulty in obtaining a suitable officer from the ranks of the service is certainly an indication that the recruitment cannot be entirely satisfactory. In 1907, the Indian Educational Service included 157 officers, while the number of directorships was 8, and the fact that 5 per cent. of the service could not be relied upon to develope the necessary administrative ability to fit them for such posts constitutes the most serious indictment possible against either the existing method of recruitment, or the inducements of the service to attract the right type of man.

With reference to the Director it must be noted that, although responsible for the work of his Department, he does not possess the official right to lay his proposals personally before the executive head of the local Administration. The proposals must be submitted through the Secretary of "an alien Department," and Sir Edward Law,* writing upon this said :—

Further exposure of this tendency by Sir Edward Law.

"The Director has no direct access to the Governor of the province, and can only address the local Government through a chief secretary who is overburdened with other business and who, as I have already pointed out, may feel no personal interest in educational questions. . . . . I cannot believe in any permanent improvement until directors have direct access to the chief executive officer in their respective provinces."

Position slightly modified on the enlargement of legislative councils.

With the introduction of enlarged legislative councils, directors of public instruction have been granted seats on such bodies, and have in consequence been entrusted with duties which give to such officers the appearance of secretaries to Government. It must, however, be noted that there is still an intrinsic difference between the position of a director of public instruction and an officially recognised secretary: the latter has access to the executive head of his province by right, the former merely by courtesy, and it is consequently still possible for administrative action to be taken in educational matters without the official knowledge of the Director. Moreover, this anomalous position, as already pointed out, has now received the final approval of the Government of India through its curiously constituted Department of Education. The position, here discussed, is fraught with much danger, particularly at the present time, when it is being recognised on all sides that a large extension of educational activity is necessary in the country. Under existing circumstances there is no guarantee that money allotted to education will be expended in pursuance of a continuous educational policy carefully thought out in all its details. Secretaries to local Governments chosen from the ranks of the covenanted service are changed possibly every five years or less, and much time is lost at each change so far as education is concerned. If the secretary feels "no personal interest in education," he is probably less dangerous than if he has pre-conceived ideas formed in a non-educational field of labour. In any case it is doubtful whether rapidly changing non-expert secretaries are best suited to deal with questions of policy affecting any branch of specialised professional work. It must be borne in mind that the secretary to a local Government does the work of a permanent official in the English Civil Service, and not that of a Secretary of State, and the existing position in the Education Department has admittedly been found unsuited to the needs of one highly specialised professional branch of Government service, *viz.*, the Public Works Department, where the Chief Engineer is *ex-officio* Secretary to Government.

Position insecure.

* Blackwood's Magazine, August, 1907.

TIPPLE, E. F.—*contd.*

Evidence is not wanting to illustrate the very real nature of the danger referred to above. Thus in the last quinquennial report, 1902 to 1907, it is stated in paras. 185-186, of this. Illustrations that :—

> "There are two important developments to be recorded in the quinquennium. One is the transfer of a large number of municipal schools to the Education Department in the Punjab, so as to complete the provision of a Government school in every district ; and the other is the movement made in precisely the opposite direction by the United Provinces, where the local Government in the year 1906 made over the district high schools to the management of district boards. ..... Lest, however, this isolated action of the United Provinces should acquire excessive importance by being supposed to mark an important turn in policy, it may be well to record that the transfer of the schools to the district boards had a very brief life, and that shortly after the close of the quinquennium the action taken in 1906 was reversed, and the schools were again placed under the management of the Educational Department with, as the Lieutenant-Governor remarked, 'acclamations of approval.'"

Again, this point is further illustrated in the following statement made by the Director of Public Instruction, United Provinces, in the local Legislative Council at Lucknow on the 13th March, 1912 :—

> "The chief recurring item of my budget is an item of new expenditure of Rs. 1,27,000 for the provincialisation of the district inspecting staff, in other words for the transfer of deputy and sub-deputy inspectors of schools from the services of boards to the Education Department. The reform is one which I have advocated for more than four years ..... the reform will enable my department to act as the eyes and ears of Government in the districts as to the extent and progress of vernacular education, and it will further enable it to help and advise the boards in the administration of the schools. A further benefit which will result from the change will be that vernacular education will be protected and encouraged by a department that has no doubt about its value and only desires most earnestly to see, as soon as may be, the reproach of illiteracy removed from this province."

Urgent need for official recognition of the value of expert educational advice.

In view of these facts it can scarcely be doubted that there is urgent need for the inclusion of an expert educational adviser in the inner councils at the head-quarters of local Administrations, and, moreover, that such advisers should possess full official recognition, rendering it impossible for proposals affecting matters of educational policy to receive official consideration by the executive head of the Government unless submitted to him through the Educational Department. Such procedure would only place education upon the same footing as public works.

Conclusion.

Present position specified.

In view of the preceding evidence it may now reasonably be contended that the extension of educational activity in India which has undoubtedly followed the issue of the authoritative resolution on Indian Educational Policy by Lord Curzon, in 1904, has not been accompanied by an adequate administrative reorganisation in connection with the relations existing between the secretariats and the Education Department.

It must be remembered that the paramount administrative authority in Indian secretariats rests with a single branch of the public services which, it is claimed, forms a "corps d'élite." The unique position of this service (the covenanted civil service) dates from a time when there were practically no distinct professional services in the country, and the members of this service still arrive in India devoid of any specialised professional training such as is required in the case of officers recruited for the Public Works Department, Forest, Agriculture, Education, and similar professional departments. As divisional and sub-divisional officers members of this covenanted civil service are regarded as constituting the official eyes and ears of what is familiarly known as the Patriarchal System of Governmen . This system has, without doubt, been extraordinarily successful in the past while India has been slowly assimilating the ideas and methods of western civilisation, but it remains one which is diametrically opposed in principle to that towards which

This position shewn to be

an anachronism.

those same western ideas inevitably point. Moreover, although the village life in India even yet remains but slightly influenced by the West, still the city and industrial life has within recent years absorbed such influence to an extent which has radically altered its character. In times past it has been essential that officers of the covenanted civil service should be handy-men(1), capable of turning their hands to anything, but during recent years the conditions which demanded such qualifications have passed away. Many branches of the public service are now filled with highly specialised professional men, and to continue to place the control and direction of these specialised branches in the non-expert hands of an alien service is a deplorable anachronism. The need for higher specialised professional branches of the public service has become undeniable, and the recruitment and organisation of such services is a matter of pre-eminent importance of India's further development. But such recruitment and organisation cannot be properly efficient unless there be a fundamental change in the administrative relations existing between these branches and the "corps d'élite."

India's growing need for specialised professional services.

This already recognised in the case of the Public Works Department.

This has already been very clearly indicated in the case of the Public Works Department, which at the present time is the oldest and most highly organised of such branches, and now forms an efficient professional service of assured status, officially recognised in the local secretariats, and held to be in responsible charge of its own section of Government work. Similar developments must inevitably follow in other directions, and the recent expansion of educational work, with the attempted administrative readjustment already noticed, indicates the necessity(2) for the liberal adoption of an administrative attitude towards the Educational Department similar to that which has now been in vogue for some time in the case of the Public Works Department.

Similar recognition in connection with education essential to future progress.

The first step towards such an administrative change is the one to which attention has already been directed independently by Sir Edward Law and Sir Henry Craik, two authorities respectively on the administrative and educational side whose opinions are of undoubted weight. Until directors of public instruction are transformed into officially recognised secretaries to local Administrations, the educational efforts of Government will lack efficient expert control, and secretariats will continue to display that bias which has been evidenced in the past by a spirit of hesitating mistrust of the advantages to be derived from a general policy of sound educational advancement in India. Patriarchal control, no matter how beneficent in intention, should no longer be allowed to interfere with expert technical direction in the details of departmental administration.

Indian educational problems are of increasing complexity, due partly to the accumulation of errors in the past, but still more to the changes which are being effected in the country's commercial and industrial position. Primary, secondary, university, and technical education all demand increased expert attention, which it will be impossible for Government to give without a highly organised professional Educational Department. The lines which such organisation should follow have already been evolved in the case of the Public Works Department. Their adoption must follow in the case of other large professional services, and at the present time the importance of educational work in India is sufficient to justify their adoption in the case of the rapidly extending educational service.

E. F. TIPPLE.
P. P. PHILLIPS.

APPENDIX III.-A.

The "Pioneer," Allahabad, March 1st, 1908.

SIR HENRY CRAIK, M.P., ON INDIAN EDUCATION.

Sir Henry Craik, M.P., the distinguished educationalist, who has lately been on tour in India, in communicating his views to a Home paper, delivers a

(1) *Vide* Appendix H.
(2) *Vide* Appendix I.

TIPPLE, E. F.—*contd.*

judgment on the educational system of this country, which may well be taken note of. He writes :—

On most Indian questions I form an opinion with diffidence and express it with hesitation. On the main aspects of the educational question I confess that I feel less hesitation. I have seen much earnest and energetic work, and I am conscious that there is much more that I have not seen. But in thinking that in its main lines it is hopelessly wrong, I am only repeating the opinion expressed to me universally by all the wisest Anglo-Indians and natives whom I have seen, and impressed on me by my own experience. I can only describe that impression by saying that there is a sort of mildew lying over the work. System, routine, and formality rest like shackles over the whole thing. I found handbooks of the modern philosophy of the West in the hands of whole class-rooms of students, who could formally con their teachings, but in whose minds a totally different set of thoughts was implanted by their history and their nature. Theories of political science and of political economy were being inculcated in youths who could deftly apply them to their own purposes, but who were entirely ignorant that the matters which they discussed and the theories which they propounded were not fundamental axioms, but matters on which in western life a hundred different views were entertained. One of the ablest amongst the educational workers whom I met told me, with the weariness of misapplied labours.— " I have to-day been trying to explain to a class of Hindu students the meaning of Shelley's *Ode to the Skylark* and *Silas Marner*. They are prescribed in the university curriculum, and so they must be learned. What good can it do ? " Only one answer is possible. In the libraries of the higher schools I constantly found *Tom Brown's School Days*. What meaning can that have for boys who have drunk in with their mother's milk ideas of formal courtesy, of studied respect for age and rank, of a personal dignity dependent on fixed rules which have the force of religion ? Do we really imagine that we shall create in them the spirit of the English schoolboy by what they must hold to be a travesty of all the relations of life as these appear to them ?

I am quite aware that there is a good deal of sound technical education being attempted in India, and glad to know that some of the ablest of our Indian administrators feel the necessity of more being done in this way. But in many cases I am obliged to confess that such technical education as I saw was a miserable mockery, and those who showed it could only say that they had hopeless hindrances—the weight of which I fully admit—to contend against. The system of caste, the habits of the people, their inertness in manual labour, their fixed idea that clerical work has a dignity of its own—all these will take long before they are overcome. But meanwhile we might surely endeavour to link the intellectual training which we give more closely to their life and their traditions, and to abandon the senseless attempt to turn an Oriental into a bad imitation of a western mind. Why should we teach them that education is impossible without acquiring the English language ? What can that impress upon them except that education is useful only to enable them to undertake those administrative duties which are their absorbing ambition ; and in the exercise of which they rarely command the confidence of their own race ! Here in Bengal, under the permanent settlement of Lord Cornwallis, the great zamindars have large estates and vast influence. The management of these estates, and the supervision of their tenants or ryots might give them employment of the best kind and a sphere of enormous usefulness. If education is to do anything for them it must be by making them cultivated gentlemen of enlarged views, but not necessarily views out of harmony with their own traditions. As it is they leave our colleges with only one aim, to become Government officials, and with acquisitions of knowledge that drive them further from their own people, instead of bringing them into closer touch with and rendering them more fit for the work which can be discharged by none except themselves. It is not a triumph for our education —it is, on the contrary, a satire upon it—when we find the sons of leading natives expressly discouraged by their parents from acquiring any knowledge of the vernacular. Yet instances of this are by no means rare. It is a smaller thing, but yet an undoubted evil, that this over-strained temptation to the native to learn English tends to render the command of the vernacular by Anglo-Indians much more restricted than the old officials assure us that it was in the early days of their service. This does not, of course, apply to the provincial districts—the mofussil, as they are called, where the district officer must be, and is, familiar with the vernacular—but it is unquestionably the case in some of the

TIPPLE, E. F.—*contd.*

central seats of Government. If the tendency spreads, it will sap more than anything else the security of our hold on India. It is one of the chief incentives to a certain class of natives to acquire facility in our tongue, that by so doing they can interpose between the higher official class and the mass of the people.

I am quite aware of the immense difficulties of re-casting the educational system. But that it requires re-casting is the opinion not of a man here and there, but of everyone who is capable of judging. We must free education from the domination of examination. We must leave greater freedom of choice and of method to separate schools and colleges. We must show the native that education has other aims than to make babus, subordinate officials, and pleaders. We must teach them that there are other spheres of activity for the educated man than the law courts and Government appointments. We must abandon the vain dream that we can reproduce the English public school on Indian soil. We must recognise that it is a mistake to insist that a man shall not be considered to be an educated man unless he can express his knowledge otherwise than in a language that is not his own. Place no restriction on English as an optional subject, but cease to demand it as the one thing necessary for all.

And in another and more restricted sphere, I fancy that most of us who know India will agree that, with the most benevolent of aims, we have encouraged a course of doubtful expediency. It has become the fashion for the sons of well-to-do parents to be sent to Britain for their education, and educational institutions at Home are not slow to encourage it. But is it wise, and does it tell in the long run, for their own good or the good of their country? Such youths come into surroundings for which, as a rule, they are ill-fitted. With the marvellous capacity which they possess of adapting themselves to the superficial aspects of their surroundings, they settle down for a time, and their tutors and guides at home are satisfied with their conduct, and fancy they are being moulded into British shape. But do they enter into full sympathy with our thoughts and feelings, or is it, indeed, expedient that they should do so, in view of their future lives? They usually come when, with a maturity strange to the Western youth, they are at the same time utterly incapable of judging our social conditions, or knowing them below the surface. Too often they form aspirations which can never be satisfied, and which no human contrivance can enable them to attain without involving incalculable evil. They break with their own traditions, they cease to be true representatives of their own people, and yet they are divided by an impassable barrier from ours. I know that there are notable exceptions; but they are due to special natural faculties and to special racial peculiarities. For the most part the experiment of mental and moral acclimatisation proves a hopeless failure. Let them come, if they come at all, not at the impressionable period of youth, but when character has been formed, and when they are able to judge and appreciate, not to imitate, superficial traits.

I wish most carefully to guard myself against any suspicion of adversely criticising educational officials of India. Some of them, I fancied, seem tired out with their work, and scarcely to be versed in the most recent educational movements. But amongst them there are men of first-rate ability. It is the system that is wrong—wrong in its original conception, and faulty in its present administration. Education has no independent place in the central secretariat, and all new schemes must be submitted through an alien department. The result is what it inevitably must be—misunderstanding and delay. The evil was supposed to be met some years ago by the appointment of a junior official from Home to act as a sort of general adviser to the central Government. The plan was one which, without the smallest personal reflection, hardly could have proved satisfactory, and which has not apparently worked better than was to be expected. I had the advantage of hearing some of the educational evidence placed before the Decentralisation Commission which is now ranging over India. The chief witness examined (of whom I knew nothing before) seemed to me to give his evidence with admirable force, and was evidently in touch with all that is soundest in educational theory at Home. It is not, perhaps, surprising that his questioners were not so conspicuously conversant with the subject; and the cross-examination of one of the commissioners—himself a civil servant in India—served what was to me the useful purpose of showing a spirit which, so long as it prevails in official quarters, will, in my opinion, effectually bar the way against any real educational reform. Educational administration must have its own independent position before it can make any bold and effective advance.

TIPPLE, E. F.—*contd.*

APPENDIX III-Aa.

The "Pioneer," Allahabad, March 26th, 1908.

IDEAS ON INDIAN EDUCATION.

The *Morning Post*, which is better informed upon Indian affairs than most English newspapers, has lately had some severe criticisms upon our educational system :—

> "The Indian Government," it says, "of 50 or 60 years ago imported into India a system of instruction borrowed from England, where instruction was not well conducted and education utterly neglected, except by one or two pioneers like Arnold of Rugby..... The marvel is not that these past follies of Indian Governments have produced the Tilaks and Lajpat Rais, but that there should have emerged from so ill-judged a system the many Indians of high character and sound judgment who have adorned the Indian Bench and the Indian Public Service."

The *Morning Post* goes on to indicate the remedy :—

> "What is wanted for Indian boys and young men is a discipline suited to the conditions of Indian life and of Indian religion, accompanied by instruction in the elements of natural science and of history, communicated in the native language of the pupils. English and English letters should be the accomplishment of those for whom there may be scope in Indian careers where English is requisite for their work."

It adds truly enough :—

> "The Englishmen engaged in education in India are, after all, the best judges in these matters. But, strange to say, they are not listened to by the Indian Government."

APPENDIX III-B.

The "Pioneer" Mail, May 27th, 1910.

Most people in this country are prepared to accept the statement that we owe a part at least of our recent troubles to an imperfect system of education. Yet there are probably few Anglo-Indians who would be willing to go back entirely on the achievements of the past fifty years. In England, however, the idea seems to prevail that we are in urgent need of a brand-new educational policy, that the only method of illumining our educational darkness is to exchange our old worn-out lamps for new ones of thoroughly up-to-date English make. Even Lord Morley appears to share this delusion ; otherwise we should not have Mr. Montagu declaring on his behalf that the Secretary of State "recognises the probable advantages" of an investigation, conducted either by a Royal Commission or a committee. What Lord Morley's intentions in this connection may be in the future no one in India probably even pretends to know, but it is significant perhaps that we should be already hearing of an eminent Oxonian scholar with qualifications for conducting an expert enquiry into our educational system. The gentleman in question is a Mr. M. E. Sadler, who was Director of Special Enquiries and Reports in the English Education Department from 1895 to 1903, and who has had a wide experience in "overhauling" systems of education in English towns and counties. We have no desire to belittle Mr. Sadler's attainments as a scholar, or his claims to pose as an educational expert, at any rate outside India ; but the point is, there is nothing to be gained, and much to be lost, by bringing out to India either a Royal Commission or a roving educational inquisitor. The only result of special enquiries of this kind would be to hang up indefinitely all those schemes of progress in which the local Governments, as well as the Government of India, are particularly interested at the moment. The ground has already been sufficiently prepared, and we have surely had enough of expert investigations involving immense labour, and ending in reports that are characterised by many impracticable suggestions. It is clear that the path of educational progress in this country

TIPPLE, E. F.—*contd.*

is strewn with many serious obstacles, and the struggle now proceeding in the Western Presidency in regard to the improvement of university courses is instructive of the kind of difficulties that have to be faced; but local Governments, no more perhaps than the Government of India, would be inclined to welcome in this or in other directions, the intervention of educational experts from outside. No one will deny that much remains to be done before we can be said to have put our educational house in order, but the work of reform can best be entrusted to those who have already made a study of our educational requirements on the spot.

APPENDIX III-C.

The "Englishman," Calcutta, December 13th, 1910.

THE NEW EDUCATION DEPARTMENT.

The Government of India, like the wheels of the Gods, moves slowly. It requires a tremendous amount of agitation and the pressure of public opinion to induce it to embark upon any new scheme of reform. In some respects this is sound policy, and "hustle" would be apt to place the Government in a false position. Having said so much in favour of the *festina lente* policy, it is only necessary to look back upon the results of such a policy in India to trace the backwardness of the country in many directions. The new Department of Education which has now been created should have been in existence many years, as the educational policy of the Government of India has been subjected to more severe criticism than perhaps any other. With a properly organised department many mistakes of the past might have been avoided. Even as now constituted, the Department has tacked on to it certain branches of work which do not properly belong to education. But the resolution of the Government of India creating the new Department is quite frank about the secondary object with which it has been brought into existence, *viz.*—"for affording relief to the Home Department." No one will question the necessity for giving the Home Department relief; at the same time, the expediency of tacking on local self-government to education seems a trifle far-fetched, even on the ground that "municipal and local bodies are responsible for no small part of the public expenditure on education." But even accepting the principle that all matters relating to local self-government are more or less connected with education, we fail to see why the new Department should be saddled with such miscellaneous branches of work as sanitation, archæology, books, records, ecclesiastical, and a few subjects of minor importance now dealt with in the public branch of the Home Department. Even the Imperial Record Office is to be handed over as a sub-department of the new Department. The resolution states that "the extreme importance of the subject of education needs no demonstration," and then proceeds to indicate the many directions in which the activities of the new Department are to be employed; but primarily it is to assist in solving the many educational problems that present themselves, and to direct the policy of Government in these matters. It seems to us, however, that if the energies of the new Educational Department are to be dissipated in controlling the subjects named above, its officers will have very little time to devote to the solving of educational problems; for local self-government is a big subject in itself; and if the recommendations of the Royal Decentralisation Commission are to be given effect to, the newly appointed Member in charge will not have much time to guide the educational policy of Government. His energies, and those of his secretary and junior officers and office establishment will be divided in a manner that does not augur hopefully for education. The officers of the new Department are not educational experts; and this circumstance raises a doubt as to the effective character of the Department in dealing with those problems for the solving of which it has been created. The only hopeful feature of the Department lies in its experimental character, as the Government of India regards the superior staff as provisional only, and subject to reconsideration in the light of experience which would be gained hereafter of the special requirements of the new Department. The Government of India, we are told, do not require to tie their own hands, or those of their successors by declaring that the posts of secretary or joint or assistant secretary should be assigned to any particular services, "as the creation of a new Department was an experiment and its novelty justified the

TIPPLE, E. F.—*contd.*

Government of India in retaining from the outset a full measure of freedom to modify the constitution of the staff in such a manner as seemed best calculated to fulfil the objects with which the Department was formed." This is the only hopeful feature of the new departure, and time alone will show what modifications may become necessary.

APPENDIX III-D.

The "Times," London, February 4th, 1913.

INDIAN SANITATION.

To

The EDITOR of the Times.

SIR,—We attempted in your issue of October 14 to show the absurdity of a scheme advanced by the Government of India which would limit the executive sanitary service to municipalities, or 7 per cent. of the population, whilst the rural population, amounting to 93 per cent. (or 227 millions) and admittedly suffering from an appalling death-rate from preventible diseases, is, with a bland faith in academic methods, left to find salvation in education. We also invited attention to the retrograde policy which, as a sequel to the vain endeavour to abolish the post of a separate Sanitary Commissioner with the Government of India, proposes to render him a negligible quantity by subordinating him to the Director-General, Indian Medical Service, who holds an appointment the selection for which and the *raison d'être* of which is the utilisation of medical, not sanitary, training or experience.

In your telegram of the 31st ultimo it is now reported that these opinions have evoked "adverse criticism" in India. It does not seem that this criticism is particularly potent, if the sample your correspondent has selected is typical. He reports that "the dream of an executive sanitary service for all India is one not in the least likely to be realised in these days of decentralisation."

But, as we have pleaded for "the organisation of an effectively administered sanitary service," and, in animadverting upon the petty and circumscribed effort of confining executive sanitary staffs to municipal areas, have stated "the scheme gives no real executive sanitary service to India," we fail to recognise the quotation which makes a covert suggestion of an inapplicable Procrustean policy to all India. As a fact, Imperial, Provincial, local, and municipal and private funds could be as safely utilised in supporting the influence of a "correctly administered sanitary service" as by the Education Department, when making its policy felt through the Indian educational service, the Provincial educational service, and locally-recruited subordinates—without in the slightest degree imperilling the rights and privileges of the suppliers of funds as now emphasised by decentralisation. We take it that such a service in India could not be termed "correctly administered" if it were incapable, not only of conforming to such conditions, but of adopting its methods to the economic, social, caste, and race peculiarities of the various provinces.

It is, however, curious that in a telegram purporting to describe the Sanitary Conference at Madras and making special reference to "adverse criticism" of our views no reference is made to Lord Pentland's closing address, in which they were fully justified. He stated :—"In a country like this, where so large a percentage of the population live under rural conditions, there may be some danger that the clamant needs of the towns and centres of industry may overshadow interests and wants. The importance of a pure water supply and other essentials of health is as vital to the villages as it is to the large towns and cities."

Further, Babu Motilal Ghose, the editor of a well-known Indian journal, whilst stating he yielded to none in his desire for the spread of education, in asserting the rights of rural areas, twitted the President, in an amusing parable of "two wives" on his obvious disregard of the interests of practical sanitation, and appealed to him to "show more substantial tokens of his love for his neglected wife sanitation . . . For in one sense sanitation demands more attention than education."

He specially called attention to the unchecked loss of life as influencing adversely the economic advance of the country, and he challenged that officer to show that Indians did not understand ordinary hygienic laws; he maintained it was not academic ignorance

TIPPLE, E. F.—*contd.*

of these laws which was at the root of the great mortality, but the absence of practical sanitation as applied to communities. Such contentions but illustrate how deeply the Education Department has blundered in not distinguishing between personal hygiene and the sanitation of communities, and has aggravated this by insisting that the latter must wait for the development of the former at the hands of the school master.

From *data* supplied by us, Mr. Stott, the well-known mathematician, has kindly calculated the waste of money which results from the useless attempt to rear men who shall be useful citizens, in a country where, undoubtedly owing to their insanitary environments, the expectation of life at birth of the Indian is nineteen years below that of the Englishman under more favourable conditions. He finds that if the expectation of life of the Englishman be regarded as the normal condition which should exist in a sanitary India, then, using Hardy's table of mortality, the excess loss in failure to reach the age of twenty-nine years by Indians educated at the school-going age amounts to £851,318 per annum of the total funds now spent for education—the calculation being somewhat less according to Stuart's table. Even after allowing liberally for possible errors and for a proportion of the value of education being reaped in good citizenship of those prematurely sent to death, the total loss is not less than £600,000. Under such conditions, increase of the proportion of the school-going age to be educated and the necessary further concurrent waste of funds as a sequence of neglecting concomitant sanitary measures is the penalty India reaps for handing sanitation, with other "miscellaneous" subjects, to the Education Department with its rival financial interests.

We trust it will not be thought we hold it an error to spread education in India, especially if more reasonable cognisance be taken of technical education in the interests of industrial development. In this connexion we protest solely against the folly of allowing education, under specious excuses of "new activity" and non-recurring doles, to run away with the bit and leave sanitation hopelessly behind; we also protest against 93 per cent. of the population, subject to the devastations of plague, cholera, malaria, and other preventible diseases, being left out of a scheme that is heralded by the Government of India as "the general reorganisation of the sanitary services throughout India."

Yours faithfully,

W. G. KING, *Col., I.M.S.,*
Retired: formerly Sanitary Commissioner with the Government of Madras,

W. J. SIMPSON,
Professor of Hygiene, King's College.

January, 1913.

SANITATION IN INDIA.

The "Pioneer," Allahabad, February 6th, 1913.

Colonel King and Professor Simpson write to the *Times* on India's sanitation, reverting to their argument in previous letters to the *Times* on the 14th October last. They reply in an exhaustive manner to the criticisms of their statements and cite data showing the huge loss, not less than £600,000, incurred through the failure of Indians educated at a school-going age to reach the age of twenty-nine and become useful citizens. They protest against the folly of allowing education to run away leaving sanitation hopelessly behind, and they also protest against 93 per cent. of the population being left out of the scheme which was heralded by the Government of India as the general re-organisation of sanitary services throughout India.

APPENDIX III-E.

The "Englishman," Calcutta, February 24th, 1913.

THE NEW EDUCATIONAL POLICY.

The very lengthy resolution by the Government of India, laying down the line of policy to be followed in matters educational, affords very instructive reading, and is an indication that the authorities have at last realised the inherent defects in the existing

TIPPLE, E. F.—*contd.*

policy, in accordance with which thousands of half-educated youths are turned out yearly who are becoming a danger to the body politic by adding to the ranks of the disaffected unemployed. This is a danger to which the Press of this country has been directing attention for many years; but so far their's has been a "voice calling in the wilderness." To some extent this is the result of too much centralisation; and it is largely due to the fact that those responsible for the educational policy of the Government of India have been men whose training has not been of such a character as to impress them with the tremendous responsibility of the Government in this matter. It cannot be too strongly emphasised that in a country administered as India is, the people look to the Government for a lead in everything. So far the great aim seems to have been to increase the number of schools and the pupils attending them, regardless of other important considerations, and particularly whether the teaching staff was competent and the curriculum suitable to the requirements of the people. The tendency throughout the country has been to turn out the greatest number of passed candidates under a system of "cram" which has had the most disastrous results. The Education Commission of 1882 recommended "the introduction of a school course complete in itself and of a modern and practical character, freed from the domination of the matriculation examination." That recommendation has been systematically ignored. The Government of India recognise this fully now, and revised ideals are to be substituted for those which have found favour so far.

The outstanding features of the resolution under reference are the readiness of the Government of India to assist local Governments by large grants; not to centralise the provincial system, or to introduce superficial uniformity, still less to deprive local Governments of interest and initiative in education. This would seem to indicate that the Government of India are prepared to spend much larger sums upon education than in the past, and is therefore a matter for satisfaction. Apparently, the Government of India have appropriated a very large sum for this purpose. From what sources this money is to be provided is not stated; but the recognition of the claims of education upon the Indian exchequer is the first step towards placing education upon a sound basis. In the past education has been starved, while other schemes of less public utility have received liberal grants. It has been urged with painful iteration that one of the greatest needs of education is a competent teaching staff with remuneration consistent with the requirements of this service. If the teachers are not competent to impart the education necessary it follows that the taught will reflect the results of such teaching. Of all State departments, the educational is the most poorly paid, with the inevitable result that men of the proper stamp and standard are not attracted to that service. It is the same in private aided schools. It is satisfactory to find that the Government of India now fully recognise that few reforms are more urgently needed than the extension and improvement of the training of teachers for both primary and secondary schools in all subjects, including, in the case of the latter, science and oriental studies; and that the Government of India have for some time had under consideration the improvement of the pay and prospects of the education services, Indian, Provincial and subordinate. Indeed, we gather that proposals had actually been drawn up "when it was decided to appoint a Royal Commission on the Public Services in India." We have failed to understand why the administrative proposals should be dependent upon the findings of the Services Commission. It is stated that "the Government of India recognise that improvement in the position of all the education services is required so as to attract first-class men in increasing numbers; and while leaving questions of re-organisation for the consideration of the Commission, are considering minor proposals for the improvement of the position of these services."

The Public Services Commission will not go into the questions of the Education Service this year, but next, and will probably require a couple of years to sift the great mass of evidence they will have collected and to write their report, which will probably not be presented for another two years after that. So that it will be at least four years before the reorganisation of the Indian education service can be taken in hand. Meanwhile we are told that the Government of India "attach the greatest importance to the provision for the old age of teachers either by pension or a provident fund. Teachers in Government institutions, and in some areas teachers in schools managed by local boards, are eligible for these privileges. But it is necessary to extend the provision in the case

TIPPLE, E. F.—*contd.*

of board and municipal servants, and still more in the case of teachers of privately managed schools, for the great majority of whom no such system exists. It is not possible to have a healthy moral atmosphere in any school, primary or secondary, or at any college when the teacher is discontented and anxious about the future. The Governor-General in Council desires that due provision for teachers in their old age should be made with the least possible delay. Local Governments have already been addressed upon this subject." This is a move in the right direction, but it begins at the wrong end! On the subject of the education of the domiciled community we gather that the Government of India are prepared to adopt a far more liberal policy. They are, we are told, prepared to accept at once the view that the most urgent needs are the education of those children who do not at present attend school, and the improvement of the prospects of teachers. They are also disposed to regard favourably the proposal to erect a training college at Bangalore with arts and science classes for graduates' courses attached to it. They recognise that grants-in-aid must be given in future on a more liberal scale and under a more elastic system. They will recommend to local Governments the grant of a greater number of scholarships to study abroad. The proposals to re-classify the schools, to introduce leaving certificates, to include in the course of instruction general hygiene and physiology, special instruction in temperance, and the effects of alcohol on the human body, and the other detailed proposals of the Simla Educational Conference, will be carefully considered on the lines of the opinions of local Governments when they have been received. We are particularly gratified to find that a course of instruction in physiology is to be introduced in European schools. This is a most important reform, as a knowledge of physiology may be calculated to save youths a deal of life-long misery. On the whole, we view with satisfaction the new educational policy of the Government of India.

APPENDIX III-F.

Comparative statement concerning the establishment and salaries of the senior branches of the educational service immediately before, and after, the re-organisation of 1896 compiled from Appendices A and B of the Government of India, Home Department, letter No. 4 Education-204—215, dated Simla, the 23rd July, 1896, which was published in all the Government gazettes.

Establishment.

Indian Service, including old graded scheme.	Madras.	Bombay.	Bengal.	North West Provinces.	Punjab.	Central Provinces.	TOTAL.
No. of Officers on Rs. 500-50-750	8	5(*a*)	16	4(*c*)	3	2	38
,, ,, 750-50-1,000	4	5(*b*)	11	3	3	1	27
,, ,, 1,000-50-1,250	2	3	6	4	2	*Nil.*	17
,, ,, 1,250-50-1,500	1	2	2	1	*Nil.*	1	7
,, ,, holding special appointments	4	6	..	*Nil*	1(*d*)	..	11
Total No. of appointments	19	21	35 ambiguously shewn as 27 in Appendix A.	12	9	4	100
NEW SCHEME. Total No. of Officers on Rs. 500-50-1,000.	14	14	26	11	7	5(*e*)	77
Allowance of 200-10-250	2	2	2	1	1	*Nil.*	included in the above total 77.
,, ,, 250-50-500	2	3	3	2	1	1	

(*a*) including 3 officers on Rs. 700 p.m., and 1 on Rs. 500-50-700 p.m.
(*b*) ,, 1 officer on Rs. 800 p.m., plus a personal allowance of Rs. 250 p.m.
(*c*) ,, 4 officers on Rs. 600 p.m.
(*d*) ,, 1 officer on Rs. 800 p.m. (Principal, Mayo School of Art.)
(*e*) ,, 1 officer on Rs. 1,250-50-1,500.

TIPPLE, E. F.—*contd.*

Cost per mensem.

	Madras.	Bombay.	Bengal.	N. W. Prov.	Punjab.	Cent. Prov.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Indian educational service,—old scheme, total cost.	18,250	17,300	34,350	11,233½	7,883½	4,033½
Ditto new scheme	16,893½	17,166½	23,333½	9,683½	6,650	5,283½
Indian and Provincial educational services, old scheme.	28,006½	28,987½	57,700	17,810	12,966½	5,133½
Ditto new scheme	27,743½	25,566½	52,583½	17,433½	12,750	6,516½
SAVING .	263½	3,421	5,116½	376½	216½	—1,383½

TOTAL SAVING—Rs. 8,011 per mensem or nearly 1 lakh per annum.

APPENDIX III-G.

The "Pioneer," Allahabad, November 3rd, 1912.

INDIA IN PARLIAMENT.

The following questions were asked in the House of Commons during the mail week :—

Indian Educational Service.

Sir J. D. Rees asked the Under-Secretary of State for India : If he will state the conditions of service, pay. and pensions in the Indian educational service ; whether the pensions and average rates of pay in this service are lower than in any other of the Imperial services of India ; whether, as a consequence of this, the service is regarded as an inferior branch of the public service ; and whether, in view of the importance of securing the best possible men from our universities for the work of education in India, the Secretary of State will take steps to render that service more attractive.

Mr. Montagu : The conditions of service, pay, and pension in the Indian educational service are published in the annual India Office List. The ordinary scale of pay is Rs. 500 a month, rising by increments of Rs. 50 to Rs. 1,000 a month. There are, in addition, certain junior allowances of Rs. 200 to Rs. 250, and senior allowances of Rs. 250 to Rs. 500. Directors of public instruction receive pay ranging from Rs. 1,250 to Rs. 2,500 a month. The pension rules are, with an important exception, in favour of this department, the ordinary rules for pension in civil departments other than the Covenanted Civil Service. Indian educational service officers are, exceptionally, allowed to reckon as service for superannuation pension the number of completed years, up to five, by which their age at appointment exceeded twenty-five years. An Indian educational service officer becomes eligible for a pension on completing thirty years' qualifying service or on attaining the age of fifty-five. The maximum amount of pension for twenty-five years' service or upwards is Rs. 5,000 a year. Directors of public instruction who have rendered not less than three years' approved service in that office are eligible for an additional pension of Rs. 1,000 a year. Invalid pensions are on the ordinary scale, one-sixtieth of average emoluments, subject to prescribed maximum, being granted for each year of service up to twenty-four, and half average emoluments, subject to a maximum of Rs. 5,000, for twenty-five years upwards. The Secretary of State fully realises the importance of attracting the best class of recruits. The initial pay of the service is exceptionally high, and the terms of pension identical, subject to the advantage as to reckoning years for service described above, with those existing in all other Imperial civil departments (other than the Indian civil service), except that members of three departments can retire voluntarily after twenty-five years' service on full pension, a privilege not possessed by the generality of civil departments. There is no reason to suppose that the Indian educational

TIPPLE, E. F.—*contd.*

service is regarded as an inferior branch of the public service, but an examination of the conditions of service in this and other civil departments is covered by the terms of reference to the Royal Commission recently appointed.

INDIAN EDUCATIONAL SERVICE.

The "Pioneer," Allahabad, November 29th, 1912.

To

The EDITOR.

Sir,—Mr. Montagu's reply to Sir J. D. Rees' question in the House of Commons with regard to the conditions of service, pay and pension of the Indian educational service illustrates the well-known fact that a perfectly accurate statement may be entirely misleading. The reply shows that members of only four civil services, including the Indian civil service can retire voluntarily on full pension after twenty-five years' service, but obscures the fact that the four services thus privileged comprise all the Imperial services recruited in England except two, the police and the educational. Men in the telegraphs, forest and public works all enjoy this privilege, and some of them have the option of voluntary retirement on reduced pension after twenty years. The Indian medical service and Government chaplains are similarly favoured.

Mr. Montagu omits to mention the slight put upon the educational service by its position in the Order of Precedence. Under present conditions a man may be so blocked for promotion that he comes into the table only after fifteen years' service. Then he is goaded with men of other services many years junior to himself and on much lower pay, and he has every prospect of getting no higher.

What recruits think of the conditions of service may be estimated from the fact that in one province alone, with a cadre of not more than sixteen I.E.S. men, four men resigned in four years before the completion of their probationary term. The discontent in the service is so serious that the offer of pension after twenty-five years would probably induce every senior man below the rank of Director to prepare for his retirement as soon as he had completed that term. Yet it is impossible to keep the educational service and the police in a position of permanent inferiority to other Imperial services in such an important respect. The difficulty of recruiting suitable men is increasingly felt at the India Office, the causes are well known, and the remedy obvious. The Government of India considered the matter in 1909 and the knowledge that Government had begun to move caused the service to refrain from a general memorial. After a delay of three years the deliberations of the Government produced a press *communique* stating that no action would be taken pending the report of the Royal Commission, which includes a man so unsympathetic to the I.E.S. as Sir Valentine Chirol.

This is hardly the best method of stimulating men to the greater zeal and energy which will be necessary to the satisfactory realisation of the far-reaching schemes for educational progress outlined at the Coronation Durbar.

ORBILIUS.

APPENDIX III-H.

The "Pioneer," Allahabad, February 27th, 1913.

FOREIGN INTELLIGENCE.

PUBLIC SERVICES COMMISSION.

Criticism in the "Times."

[Reuter's Press Messages.]

LONDON, *25th February.*

An article in the *Times* to-day criticises the Public Services Commission, declaring that it is taking too narrow a conception of its objects. The article says reports of the sittings of the Commission lead to the conclusion that unless the Commission's methods are drastically altered they may cause a serious increase in racial bitterness. After quoting

the terms of reference as seeming on the surface admirable the article emphasises that the Commission has not to confine its enquiries to the covenanted service. The article refers as being mischievous to the manner of putting to witness questions the purport of which is, "Do you think the Indian is as good a man as the Englishman" The writer considers that these vague wounding questions serve no useful purpose. They will certainly not lead to the reform of existing defects.

Alluding to the inquiry into the working of Indian courts the article repeats that such an enquiry can only be conducted by English judges of great eminence. The writer thinks that the investigations of the Commission touching Indian courts should be severely restricted. The writer considers that Lord Islington in his opening speech struck a false note. The true functions of the commissioners do not lie in the direction of discussions of the relative mental and moral qualities of the two races, with which some of the most important problems in connection with executive administration have nothing to do. The Commission remains wholly oblivious of many grave questions, including the question whether the developing needs of India now require that members of the covenanted service should be specialised almost from the beginning or whether the old tradition feasible enough a century ago, that the Indian administrator should be a handy man able to turn his talents in any direction, should be preserved.

APPENDIX III-I.

"Truth," London, February 12th, 1913.

No doubt the Indian Public Service Commission will enquire into the grievances of educational officers in regard to their pay, etc.; but the more important question of general reform of Indian educational policy and administration will apparently be outside the province of the Commission. Yet, as I know from correspondence that reaches me, this is a matter on which members of the educational service are exercised quite as strongly as they are on the subject of salaries, promotions, and pensions. It is true that there is now a new Education Department at the headquarters of the Government of India, under the charge of an Indian Civil Service Member of Council, with a second I. C. S. Officer as senior Secretary. The constitution of the department, however, is unsatisfactory.

In point of fact, the new Department was established hurriedly to avert a threatened agitation for a more effective measure, and its working has only helped to confirm the view that there can be no real reform of Indian educational methods without the formation of a strong and independent educational service on the lines of the Public Works Department. As things are, educational officers possess no authoritative position in which they can take an effective control of the educational policy of the country. They are kept in a subordinate place because in high quarters the attitude towards their work is unsympathetic, the idea being that education makes the Indian more difficult to govern rather than better worth governing.

APPENDIX IV-A.

MINUTE ON THOMASON COLLEGE PREPARED BY MR. E. F. TIPPLE FOR SUBMISSION TO THE PUBLIC WORKS DEPARTMENT RE-ORGANISATION COMMISSION, 1917.

Relation of Thomason College to Coopers Hil

The Thomason College is the oldest of the Indian engineering colleges and was founded in 1847, owing its origin to a training school for artisans started at Roorkee in 1845. The Thomason College is, therefore, antecedent to Coopers Hill, which was founded in England in 1871, and with which the Indian college was on an equal footing in the matter of training men for the Public Works Department up to 1894, when the introduction of the Provincial service system relegated Roorkee to a definite position of inferiority.

The constitutions of the two colleges, Thomason College and the Royal Indian Engineering College, were almost identical, but differed fundamentally from the type adopted at the engineering schools of British universities.

TIPPLE, E. F.—*contd.*

Object of this minute.

This fundamental difference lies in the fact that at Thomason College and the Royal Indian Engineering College educational management has never existed, while at the Engineering schools attached to modern universities such management always predominates. It is the object of this minute to bring forward the evidence for this statement so far as it affects Roorkee, and to endeavour to make clear the preponderating advantages attaching to the system in vogue at university engineering schools in the West.

State of technical education at time of founding Thomason College.

Both Thomason College and the Royal Indian Engineering College were originally founded to enable the Indian Government to recruit suitably for their Public Works Department. In 1854 when, owing to the exertions of Mr. Thomason, the Roorkee College was first placed upon an adequate basis, technical education was in its infancy and such chairs of engineering as existed at British universities were of recent creation. Matters were somewhat more advanced in 1871 when Coopers Hill was started, but no widespread development of technical education occurred in England before the foundation of the City and Guilds of London Institute in 1878. It follows, therefore, that the constitution adopted at Roorkee and at Coopers Hill must be regarded as merely tentative rather than the most suitable for colleges of their nature.

System of control adopted at Thomason College and at Coopers Hill.

In both cases a non-educational principal or president was recognised by Government as the officer solely responsible for the efficient working of the college, and under his orders the educational staff were placed for the purpose of carrying out such commands as might be issued to them.*

Later developments of technical education.

This system naturally presented few disadvantages so long as technical education was in its infancy, before any suitable technique existed, and while principal and staff were equally in the position of tentative workers and one man's opinion was as good as another's. But in the late seventies and early eighties many workers in the field of technical education began to appear. Professor Rankine's work at Glasgow began to bear fruit, the truths enunciated in his dissertation on *The Harmony of Theory and Practice* began to be appreciated and the close relationship existing between pure and applied science came to be realised in certain quarters.

Later engineering schools adopt system of control better suited to educational needs.

The later engineering schools developed a constitution more calculated to make full use of this relationship, and the courses of study in such institutions began to be arranged in well defined and properly co-ordinated groups. Responsibility for the efficiency of an engineering school could no longer be placed upon the shoulders of one man; it rested with a board of studies or faculty of engineering through which alone the proper co-ordination required could be secured. Under such a system of development the engineering schools of the City and Guilds of London Institute and of certain British universities, came into existence.

Such a system of educational control never existed at Coopers Hill, nor at Roorkee.

Secretary of State's recognition of need for modification at Coopers Hill.

Thus, so far as Coopers Hill is concerned, Sir W. Anson in a letter to the Secretary of State for India, dated 6th March 1901, wrote—

> "It is now possible, and has actually happened, that a teaching staff of long experience, willing and competent to teach, may find their scheme of studies altered and the dismissal of some of them determined upon, without a hearing by the president."

To which the Secretary of State in his reply, dated 11th March 1901, answered—

> "It is clear to me that the channels of communication between those actually teaching and those in authority over the teachers, *viz.*, the president and visitors, should be widened and quickened."†

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* Sir Oliver Lodge writing in "The Times" of 20th February 1901 stated with reference to Coopers Hill—"The Indian Government has attempted to run the College on military and autocratic lines, and though it had eminent educational specialists among its professors it has not attempted to consult them or form them into a senate or a responsible board of studies or give them any voice in its management."

Also in Government Order No. 2305, dated 11th December 1916, Industries Department, United Provinces, to Government of India, it is stated with reference to Roorkee—"His Honour was particularly anxious to have an Engineer with practical experience *in command* at Roorkee."

† *Vide* Blue Book Cd. 530, dated 1901, pages 2-3.

TIPPLE, E. F.—*contd.*

This eventually led, in the case of Coopers Hill, to an officially constituted board of studies being called into existence, eighteen months before the abolition of the college, and thus too late to make its influence felt on developments there.

At Roorkee, about 1894, when the college was affiliated to the Allahabad University, a faculty of engineering was necessarily created, but this was allowed to die of inanition since Government failed to realise the necessity for ensuring a sufficiency of fellows competent to serve on such a faculty.* Moreover a college board of studies has, through the course of events at Roorkee, come unofficially into existence chiefly owing to the educational difficulties incident to the college work, but this board possesses no official authority and consequently their considered opinion can always be set aside.

Modification attempted at Roorkee to meet educational need never satisfactorily inaugurated.

The whole history of Thomason College, since its reorganisation in 1894-96, illustrates how the guiding authorities persistently ignored the results of educational experience and declined in any way to allow educational control to become a reality.

In 1891, Sir Auckland Colvin's attention having been directed to the need for extending considerably the facilities available for technical education, he appointed a committee which made an exhaustive examination of the position.

The Colvin scheme of reorganisation.

Upon the findings of this committee he wrote—

> "The recommendations of the Committee may be divided into two distinct classes: *first*, those which it is possible to carry into effect with little or brief delay; and *second*, those which are in great measure necessary to the full carrying out of the first category, and partly independent: but which all permit of being postponed for more mature consideration. The recommendations which fall into the first of these two classes are *firstly*, the reorganisation of the Thomason Engineering College, *secondly*, the institution by the Education Department, or by the University, of a school final examination for the modern classes of high schools: *thirdly*, the establishment of industrial schools at Roorkee, Lucknow or Allahabad."
>
> "The recommendations which fall under the second category are these: *first*, the establishment of a school of art at Lucknow; *second*, the establishment of an agricultural school at Cawnpore; *third*, the establishment of a teachers' central training college at Allahabad."

All these recommendations have since been brought into effect and all are admitted to be bearing good fruit, with the single exception of the reorganisation of Thomason College. The reasons, therefore, for the failure of the recommendations in this particular instance, need very careful examination and a suitable opportunity for this is afforded by the appointment of the present Public Works Department Reorganisation Commission.

The recommendations regarding the reorganisation of Thomason College were as follows:—

Its recommendations concerning Thomason College.

(1) The transference of control from the Public Works Department to the Education Department.
(2) Affiliation to the Allahabad University.
(3) The formation of a committee of management consisting of the Chief Engineer to Government, United Provinces, Public Works Department, Buildings and Roads Branch, the Director, of Public Instruction, and the Principal.
(4) The strengthening of the educational staff by the appointment of Indian educational service officers as professors.

The report and recommendations of the Colvin committee clearly indicate that the trend of the developments foreshadowed was the establishment at Roorkee, upon a thoroughly scientific basis, of an educational centre for higher technological work. Further that this centre should be in touch with industrial schools for low grade work suitably scattered throughout the provinces, upon which the Principal of Thomason College was required to report after periodic inspections. In confirmation of this it is stated in letter No. 266, dated Simla, 27th August 1903, Government of India, Finance and Commerce Department to the Secretary of State, that the Thomason College was "developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces."

* *Vide* paragraph 5 of Government Order, United Provinces, No. 2365-Industries Department, dated 11th December 1916.

TIPPLE, E. F.—*contd.*

Failure of the controlling authorities at Roorkee to understand the nature and import of the findings of the Colvin Committee. These same authorities discredited by Government of India for their inability to appreciate the value of educational experience.

The principal developments, however, which actually took place at Roorkee between the years 1894—1904, were in connection with the introduction of industrial and mechanical apprentice classes which were all of a distinctly low grade type. The mere presence of such classes at Roorkee was sufficient to indicate that the Thomason College, instead of exerting any stimulative influence on industrial schools through the inspecting duties devolving upon its principal, was in reality entering into competition with them and developing into a formidable rival of such schools.

In 1901 a committee of enquiry, presided over by the principal of Thomason College, was appointed to examine into and report upon the whole question of industrial schools; the findings of this committee, however, were, subsequently, entirely discredited by the Government of India in a resolution, dated 14th January 1904, wherein it was stated—

> "The Government of India are unable to find in the argument advanced by the Committee, in the example of other countries, in the opinion of expert witnesses, or in practical experience in India, any reasons which would justify them in sweeping away the present industrial schools, and substituting the system described in this report."

It must be admitted that such criticism very clearly shows that educational evidence and educational experience possessed little or no value in the eyes of the controlling authorities at Roorkee from the time of the inauguration of the Colvin scheme of reorganisation up to 1901.

Independent recognition of this by the local Government, but measures introduced for improvement, are inadequate.

The Government of the United Provinces itself recognised that the system of control in vogue at Thomason College was inadequate to deal with questions of educational detail, and in 1901 they instituted a college council to consist of members of the teaching staff, and to be associated with the principal "in regulating the courses of study, the selection of text-books and other matters which cannot be conveniently and effectively dealt with by the Committee of Management."

These intentions were frustrated from the start by reason of the defective constitution framed for the Council, which, for all practical purposes, reduced it to a nullity.

The fact that the management of educational matters at Roorkee was unsatisfactory received further confirmation in 1905 when a discussion took place in the Allahabad Senate upon the question of the abolition of the Faculty of Engineering. It was then stated * that—

> "The College of Engineering at Roorkee is not what such an institution should be. Roorkee College, as an educational institution, is very far from being satisfactory, and the responsibility for this rests upon the Government. It is mainly officered by Royal Engineers who have had no special training for their work. Until this college is thoroughly reformed and its work put upon a sound educational basis, we, as a university, ought to refuse to give it recognition and hence to decline to establish a Faculty of Engineering."

Failure of technical class due to neglect of educational details and inability to appreciate the value of educational experience.

Moreover, the subsequent history of the college, since 1905, shows that there has been no improvement in this vitally important matter. In 1906 the Government, United Provinces, made a further endeavour to develope high grade technological work at Roorkee and, with this object in view, a technical class was started at Thomason College in October 1906 in accordance with a scheme outlined in Resolution No. $\frac{501 \text{ of } 1906}{\text{XV—413-54}}$, Education Department, United Provinces.

This resolution shows that the object of the technical class was to provide a higher grade of training than that available in the mechanical apprentice class, but the ideas of those responsible for the scheme were very vague and confused, completely lacking the definition necessary to launch such a project with success. Students, however, were collected before any clear scheme had been formulated and before the teaching staff had been in any way notified of the extra duties expected from them. Shortly after the class started, proposals for the arrangement of systematic courses of instruction were brought forward by the educational staff, but these were all ruled out as inopportune, and the principal was satisfied to allow the new students to work side by side with the mechanical apprentice class.

* *Vide* Proceedings of Allahabad University Senate Meeting held 14th January 1905.

TIPPLE, E. F.—*contd.*

The full story of the class is given in the Annexure A, prepared by the Thomason College Board of Studies, which came unofficially into existence owing to the educational difficulties which arose in connection with this same class. The whole case exhibits very clearly how those responsible for the management of the College were entirely unable to recognise the educational difficulties connected with the work and the value of educational experience in determining possible solutions of such difficulties. In the space of ten years (1906-16) these same classes were started, abolished and restarted on three distinct occasions at Roorkee, the only difference introduced being merely one of name. Moreover, during this very period, in 1909, the *college was in reality transferred from the Education Department and placed under the Industries Department*, the budget alone being left with the Education Department. The treatment accorded to the technical class was, unfortunately, of such a kind as to warrant the outside public in assuming that there was an attempt to stifle high grade technical education at Thomason College. The responsibility for this, however, rested not with the educational authorities, but with those in administrative charge, who failed to realise the necessity for consulting the educational staff when seeking to solve educational difficulties.

Recommendations of Colvin scheme of reorganisation only nominally carried into effect.

Although Thomason College was nominally transferred from Public Works control and placed under the Education Department in 1893, the original system of control has continued to persist up to the present time. Thus Government deals with the college through the Committee of Management, the President of which is Chief Engineer, Public Works Department, Buildings and Roads Branch, and who is likewise Secretary to Government in the Public Works Department. Education is represented on the Committee of Management by the Director of Public Instruction, through whose Department all correspondence relative to the college should pass, if the college were really under educational control. This educational safeguard, however, no longer exists since, as mentioned above, the college with the exception of its budget, has been placed under the Industries Department from 1909.

Non-educational system of control at Thomason College left unaltered.

Moreover, the final educational safeguard introduced in 1893 by affiliation with the Allahabad University and the creation of a faculty of engineering is non-existent, owing to the abolition of this faculty in 1905. Consequently, so far as Government is concerned, the college is under the joint control of the Public Works and Industries Department, and educational influence can only be exerted through indirect channels.

The procedure adopted at another professional college is in distinct contrast with the case of Thomason College. The affiliation of the Medical College, Lucknow, to the Allahabad University, was accompanied by the creation of a medical faculty consisting very largely of members of the teaching staff of the college. In the case of Roorkee no member of the teaching staff was ever placed on the Faculty of Engineering, and owing to this circumstance that Faculty died of inanition. Through the Medical Faculty, which, as constituted is an active reality, a measure of educational control exists at the Medical College ; at Roorkee this has never been the case.

The system contrasted with that adopted at Medical College, Lucknow.

Finally with respect to the courses of training existing at Thomason College it is stated in paragraph 6 of Government Order No. 2365 (under reference above) that—

Government dissatisfaction with Thomason College.

> "It is in the judgment of the Lieutenant-Governor imperative that there should be at Roorkee, at the present juncture, a principal who can tell from the practical experience of working with Roorkee men, what are the defects in the course or what are the conditions which are responsible for the unquestionable deterioration in the product of the college."

In view of the evidence already given in this minute, it is respectfully submitted that in any examination of the questions raised by this statement from the local Government, the unofficial Board of Studies of Thomason College should be allowed full opportunity of presenting their opinions for the consideration of any duly appointed investigating authority. Educational questions of no inconsiderable importance are raised under such an enquiry, and unless educational officers be given full opportunity for presenting their side of the issue, there will be distinct danger of their being held responsible for certain undoubted defects which exist in the courses at Roorkee, for the presence of which, however, these officers are in no way answerable.

Importance of educational questions raised.

TIPPLE, E. F.—*contd.*

Misleading statements current in India regarding unsuitability of educational officers for duty at technical institutions.

Untenable statements have already been made on high authority in India regarding the unsuitability of educational officers for duty at technical institutions. Thus Sir Edward Buck, in his report on "Practical and Technical Education", dated 1901, stated that—

> "Educational officers, however able and accomplished they may be, have themselves had no practical training, are not brought by their profession into contact with industrial occupations, *have no technical knowledge.*"

This statement is very misleading, since it entirely fails to discriminate between educational officers brought out for purely scholastic work and those recruited specially for service at technical institutions. All four educational officers at Roorkee, for instance, were possessed of, and selected for, their previous technical training before coming to India. The conclusions of Sir Edward Buck have produced a settled conviction in India that technical education must be divorced from general education and placed under entirely distinct control. This overlooks the fact that those technical institutions, which have done most for industrial development in western countries, have been institutions in charge of educationalists possessed of technical training and experience.

Improvements introduced at Thomason College by such officers.

At Roorkee, since the appointment of Indian educational service officers to the staff, certain gradual changes have been inaugurated which have all tended to bring the courses at Thomason College more into line with those at western engineering schools. Regular courses of lectures have been introduced, the work has been arranged in well-defined groups, an informal board of studies has been brought into existence, which has already justified itself by drawing up a scheme for the affiliation of the college to the Allahabad University, which has received the approval of the Committee of Management of which the Vice-Chancellor of the University was a co-opted member at the time. In accordance with opinions promulgated by educational members of the staff, much of the low grade work, previously existing at Roorkee, has by Government order been removed to more suitable centres.

Insecurity of educational position.

At the same time the educational position is insecure, in view of the evidence already given; and schemes for educational changes at Thomason College can still be initiated and accepted without the educational complexities involved ever being properly considered. This has occurred in recent years with disastrous results on three distinct occasions in the case of the technical classes (*vide* Annexure A). It seems likely to occur in the case of the civil engineer class for the following reasons:—

Nature of Government's dissatisfaction with Thomason College and its causes.

> The dissatisfaction, felt in the Public Works Department with the products of this class, usually takes the form of an accusation that the students are unpractical when sent out on works. Such failure can only be due to two causes—unsuitably arranged courses in Civil Engineering; unsuitably arranged apprenticeships.

With regard to the first it may be noted that the courses in civil engineering are the only existing courses at the college which have never been modernised under educational direction. They belong to that group of studies which has never been placed, at Thomason College, under the control of an *engineer with educational experience*, as is the custom at western engineering schools.

Remedy lies in Educational control.

The civil engineering courses are unduly cumbered with subjects which are of little educational value for engineers, but which are possibly calculated to add to the immediate utility of the students in routine matters when he first goes on apprenticeship to the Public Works Department. This especially applies to estimating and accounts, and in a minor degree to drawing and surveying. It may be noted that this is an exact repetition of the conditions which prevailed at Coopers Hill (*vide* paragraph 23 Report of Final Commission and Minutes of Evidence).

Such so-called practical subjects are apt to gain undue prominence in professional courses of instruction when these are arranged under the control of the Department which is required to make use of the professional product so trained. Practical experience on works is not in itself a sufficient qualification for the discharge of duties connected with the educational management of a technical institution. Such experience is too apt to lose sight of the fact that it cannot itself be acquired at any college, it can only be gained on professional work. No technical college, however efficient, can turn out the finished professional product; the college course must be followed by a genuine period of apprentice.

TIPPLE, E. F.—*contd.*

ship. The advantage of the college training lies in the fact that it enables the recipient to acquire sound practical experience on works more rapidly than is otherwise possible. This advantage, however, only exists when the college training has been genuinely educative, *i.e.*, concerned with the explanatory treatment of questions of scientific principle underlying the practice of the profession, and not with the mere memorising of items of professional routine. Confirmatory evidence on these points is forthcoming in the opening address delivered by Dr. W. C. Unwin, an acknowledged authority on the subject, at the Conference convened by the Institute of Civil Engineers on the 29th June 1911 for the discussion of certain details connected with the education and training of engineers.

With reference to the second point—suitable apprenticeships—there has undoubtedly existed in the Public Works Department a tendency to compare the Roorkee trained students with the imported Imperial service engineer, during the first year of service. This is obviously unfair to the Roorkee man, who, during his first year, is undergoing his apprenticeship and must therefore, in fairness, be regarded as still in *statu pupillari* whereas, the Imperial engineer is supposed, on appointment, to have already had a certain minimum of practical experience on engineering works. Properly arranged system of apprenticeships

One further point worthy of consideration in this connection is the introduction of the Provincial service system and the consequent degradation of the status of Roorkee College. This has naturally compelled all, who seek employment in the Public Works Department, to prefer the worst engineering school in Britain to the best that can possibly be provided in India.

These are the points of educational importance which my experience at Home and in India compel me to submit for careful and impartial investigation. This minute has, therefore, been prepared for the purpose of bringing these matters forward for the consideration of the Public Works Department Re-organisation Commission, which, under item VII of the terms of reference, is required to investigate—

> "Whether the system of education in Government engineering colleges is organised on a sufficiently broad basis."

ANNEXURE A.

NOTE ON THE TECHNICAL CLASSES AT THOMASON COLLEGE, PREPARED BY THE BOARD OF STUDIES IN CONNECTION WITH THE NEW CLASS STARTED IN OCTOBER 1915.

In 1905, during the regime of Sir J. Digges La Touche, correspondence passed between the local Government and the Government of India, with the object of starting a technical class at Roorkee. This new class was to provide training in mechanical and electrical engineering, and also in applied chemistry, for which, Government had every reason to consider that there was a real demand. In the correspondence referred to it is clearly indicated that the instruction, for which provision was about to be made, was to be of such a standard as ultimately to fit men for positions of responsibility on works, or in engineering establishments; and, so far as electrical engineering was concerned, definite mention was made regarding the openings likely to be available for well-trained men in connection with the electric-power installation in Cawnpore, and also the electric-power schemes then under consideration for Lucknow and Allahabad, to which Mussoorie and Naini Tal might also have been added.

REFERENCES.

No. 502, dated 1st September, 1905, from Secy. to Govt. of India (Home Dept.), to Secy. to Govt., United Provinces.

Resolution, Ed. Dept., U. P. No. $\frac{501}{XV.-413-54}$ of 1906.

A perusal of resolution No. 501 of 1906, conveying sanction to the establishment of this new class, shows beyond doubt that it was intended that the instruction to be given was to be of a distinctly higher standard than that already provided for in the existing mechanical apprentice class.

Unfortunately, in the correspondence cited above, the terms foremen, supervisors and overseers are confused with managers and investigators, and this clearly evidences that the precise nature of the training necessary for foremen and managers was not at all understood by those responsible for the launching of the new scheme. It was not understood, for instance, that foremen are simply reliable mechanics, with ability to control their fellow-workmen, in their own particular line of trade; whereas the managers of

TIPPLE, E. F.—*contd.*

engineering establishments are men of higher educational and professional attainment. It was the failure to comprehend this important educational detail, until it was too late, that led directly to the failure of this first scheme.

U. P. Government Resolution No. $\frac{1329}{XVIII.-52}$ Ind. Dept., dated 6th September 1909, para. 3.

The first technical class opened at Roorkee in October 1906, with 35 students, but Government fixed 30 as the number to be admitted in each subsequent year. The new class contained many promising candidates, but considerable diversity in educational qualifications existed among the students at entrance. This was due mainly to the fact that admission to the class was through nominations made by the Commissioners of the different divisions. This difficulty could, however, have been easily overcome, either by a more careful system of nomination, or by the institution of an entrance examination.

The next step of importance in connection with this class took place on the 3rd of April 1907—some six months after it had been at work—when at a meeting of the College Council, held on that date, proposals were put forward by certain members of the professorial staff, responsible for the actual teaching work, for making proper arrangements for systematic courses of instruction, but all the proposals then submitted were ruled out as inopportune. From its commencement, the technical class worked side by side with, and on exactly the same lines as, the mechanical apprentices. Trouble, however, only arose, when the technical class students reached their third year, and then discovered definitely for themselves that the entire course was precisely the same as that laid down for the mechanical apprentices. Deputations from the 70 odd students then on the rolls, waited on the members of the professorial staff, and feeling ran very high, owing to the fact that the students considered that they had been deceived; they had come to the college expecting to be trained in the higher branches of certain professions, and, instead, they had been trained simply as mere mechanics. The dissatisfaction was great, and it was only by sympathetic and tactful dealing with the situation that unpleasant consequences were averted. Hurried arrangements had to be made for courses in science for all three years simultaneously, and such arrangements taxed both the resources of the college, and the teaching staff concerned.

The third year students were invited back for a fourth year. Subsequently, questions were asked in Parliament, bearing upon the unsatisfactory character of the instruction provided, *e.g.*, Sir J. D. Rees asked the Secretary of State for India (*Pioneer*, 12th April 1908)—

> "Whether in view of the fact that the education supplied at modern engineering colleges is of a complex character, requiring a carefully prepared curriculum of a highly specialised nature, and that the technical classes started at Thomason College, Roorkee, under Resolution No. $\frac{501}{XV.-413-54}$ of 1906, dated the 6th of June 1906, and published in the United Provinces Government Gazette were intended to educate men for subsequent position as managers of factories, the Government of India approves the resolution of the Government of the United Provinces in which it is stated that there will be no cut-and-dried curriculum; and whether the Secretary of State will cause inquiries to be made for the purpose of ascertaining whether the educational scheme characterised by the absence of a cut-and-dried curriculum is giving satisfactory results."

As the result of all the dissatisfaction which occurred in connection with the new technical class the then Lieutenant-Governor, Sir J. P. Hewett, visited Roorkee and met the members of the Committee of Management when it was decided that the class should be immediately abolished. The reasons assigned for the failure of this class were: that it had been started prematurely, that much confusion existed as to its real objects. This latter point is of extreme importance, and, moreover, its significance was clearly recognised by Government, since, in order to make it quite clear it was stated in paragraph 2 of letter No. 601, dealing with the question, that—

No. 601 Ind. Dept., dated 20th March 1909, *vide* file No. 52 Ind. Dept. Proceedings, 132-133 of 1909.

> "The Lieutenant-Governor, Sir J. P. Hewett, is of opinion that it is quite wrong in placing foremen, supervisors or overseers on the same plane as managers and investigators. If the ordinary workman is compared to a private soldier

the foreman, who is substantially of the same class, is a non-commissioned officer. The workman is provided for in industrial schools, the foreman in your mechanical apprentice class; perhaps that class, or some portions of it, may subsequently be transferred to industrial schools, but that is a separate question. The Technological Institute is to be the industrial Sandhurst, and *its object is to train the officer class of the industrial army, the men, who by status, education or possession of capital are fitted to be leaders.*"

Particular attention should be directed to that portion of the quotation which is in italics, since the fact that the technical class was for the training of men of education and satisfactory status, was subsequently entirely overlooked, and the sole view taken was that the only possible means of making the class a success was to fill it with sons of capitalists.

As a result of the first technical class fiasco, a board of studies, consisting of the professorial staff as members, first came into existence. It held its first meeting on the 8th of December 1908, when proposals for a new technical class were formulated. These proposals were approved by the College Committee of Management, and Government sanctioned the starting of a second technical class in October 1909, termed the higher division of the Department of Technology, the mechanical apprentice class constituting the lower division.

In view of the dissatisfaction, which occurred in connection with the first technical class, it was not surprising that only a few candidates offered themselves for admission to the higher division of the Department of Technology. Nevertheless, a few men of the right type were forthcoming, and among them were several Europeans, which fact could not be regarded as a drawback, since, if the Europeans were able to obtain substantial appointments at the end of their course, then the Indians would very soon compete for entrance to the class. Two students succeeded in completing satisfactorily the prescribed three years' course, and these—Mr. Thick and Ghulam Muhammad, both obtained the final or honour's certificate in mechanical engineering at the examination held by the City and Guilds of London Institute. In the following year, 1914, Mr. Capstick did likewise. Now, these examinations represent a high degree of professional attainment, and no difficulty has been found in securing suitable employment for all the men turned out from this class, whose professional qualifications are equal to those of any home-trained engineers. From the very outset, however, the second technical class, called the higher division of the Department of Technology, did not, in the opinion of the professorial staff, receive the encouragement it deserved. It was pronounced a failure; nominally on the ground that the sons of capitalists were not forthcoming in considerable numbers to be enrolled as students, thus entirely overlooking the fact that the class was equally designed for the needs of men possessing the necessary status and educational attainment. The actual teaching staff considered the results of the higher division of the Department of Technology highly encouraging, and are fully convinced that a little sympathetic treatment on the part of the authorities, *e.g.*, advertising in the papers and posting of circulars to schools, etc., was all that was necessary in order to render it a success. Moreover, in the circumstances, it was far better to start with a small number of students of the right type, for whom suitable openings could be found, than to secure large numbers of unsuitable men for whom no employment would be obtainable. Most of the larger and well-known institutions in the West, commenced work with very few students; for instance, the Mechanical Engineering Department in the Manchester School of Technology had only two students during the first year of its formation. It is found that the number of students rapidly increases as soon as an institution has established a reputation for turning out men of a high standard of professional efficiency, who are soon able to secure remunerative employment. For this reason it is an advantage to start with a few students of the right type, and it is seldom that the men thus available are the sons of capitalists.

See also para. 8, U. P. Govt. Resolution No. $\frac{72}{\text{XVIII.—368}}$ Ed. Dept., dated 12th January 1914.

Government has now sanctioned the starting of a third technical class for the training of what is to be known as the "improver grade" of engineer, and some nine students joined the class for the first time at the commencement of the session in October 1915.

No. $\frac{503}{\text{XVIII.—527}}$ Ind. Dept., dated 4th March 1915.

TIPPLE, E. F.—*contd.*

The advisability of such a start was considered at the first meeting of the Board of Industries held in Lucknow on the 5th December 1914, when it was resolved " that the Board is of opinion that a class of the ' improver ' grade—

> " is necessary and should be established. They consider that it cannot be satisfactorily carried out at the technical schools and that the Roorkee College appears to be the only possible place. It is, however, essential for the success of any such class that there should be a continuity of policy for a considerable term of years. "

In order to render such continuity of policy possible, it is in the opinion of the Board of Studies advisable to define the character of the policy somewhat more clearly than has been done in the brief resolution accepted by the Board of Industries and to emphasise certain features which should be regarded as essential in any type of technical work undertaken at Roorkee. The past history and official records of the technical classes at Roorkee render such definition and emphasis by no means difficult.

Since the Naini Tal Conference of 1907, the general tendency of Government policy in relation to technical education, so far as Thomason College is concerned, has been to remove from the college all lower grade work and transfer it to other centres scattered throughout the provinces, *e.g.*, industrial classes in carpentry, wood-carving, fitting, etc., motor driver class, and finally the mechanical apprentice class. It is apparently recognised that the staff and equipment which have been provided at the Thomason College, at no inconsiderable cost, are specially adapted for higher grade technical education and that it is educationally unsound to concentrate both higher and lower grades at the same institution. This view is very fully elaborated in letter No. 601, Industries Department dated 20th March 1909, from which an extract has already been quoted. Under these circumstances it is, in the opinion of the Board of Studies, insufficient to define the character of the new technical class as merely the " improver " grade, and that this is so is shown from the fact that in certain demi-official correspondence Government has already found it necessary to emphasise the fact that there is to be a " distinct cleavage between the new class and the mechanical apprentice class. " Moreover, the need for a fuller definition of the " improver " grade to avoid ambiguity, and to differentiate between this type of education and that provided for the old mechanical apprentice class, is also indicated in Government Resolution No. 1163, paragraph 13, where it is stated that " it is not altogether a complete analogy to treat the ' Improver ' Class as parallel to the Upper Subordinate Grade in the Public Works Department. " From an educational standpoint this at once means that the type of education to be given in the new class is identical with that which the Board of Studies has already twice laid down for the two previous classes which have been abolished, and indicates that such abolition was in itself an unnecessarily drastic step. Continuity of policy can, in the opinion of the Board of Studies, be very easily attained by emphasising the position already clearly stated by Government in letter No. 601, quoted above, and allowing a fair uninterrupted trial of the courses of instruction which the Board of Studies has always considered suitable in this connection. Minor changes, which experience may show to be necessary, can be introduced by alteration of the circular, so far as the constitution of the class is concerned ; and, so far as the courses of instruction are concerned, by any changes approved by the Board of Studies, the body to which such matters were delegated by Government when the original College Council was formed from which the Board of Studies has sprung as a Sub-Committee.

D. O. Ind. Dept., No. 174-C., dated 21st April 1915, a second letter was despatched shortly afterwards.

U. P. Govt. Resolution, Ind. Dept. No. 1163 XVIII.—415, dated 27th August 1913.

P. P. PHILLIPS,
Secretary.

E. F. TIPPLE,
Offg. Principal, President.

Dated 15th December 1915.

TIPPLE, E. F.—*contd.*

APPENDIX IV-B.

MINUTE ON THOMASON COLLEGE PREPARED BY DR. P. P. PHILLIPS FOR SUBMISSION TO THE PUBLIC WORKS DEPARTMENT RE-ORGANISATION COMMISSION, 1917.

Object of this minute.

The Thomason Civil Engineering College, Roorkee, was started under the ægis of the Public Works Department, and this Department has always exercised a controlling influence on the management of the College affairs. It is the object of this minute to shew that this influence has produced a narrowing and restricting effect upon the educational value of the institution, and that, although Government has, on several occasions, initiated attempts to break away from this influence, yet no real measure of success has hitherto attended any of their efforts.

Colvin Committee's proposals for expansion of Thomason College.

From its commencement in 1845, Thomason College was almost exclusively concerned with the immediate needs of the Public Works Department, until the year 1890, when the growing industrial requirements of these provinces caused the Lieutenant-Governor, Sir Auckland Colvin, carefully to review the existing position in a minute, dated September of that year, and to appoint a committee to make recommendations for improving and increasing the facilities for technical education in the North-West Provinces and Oudh. This committee, so far as their proposals affected the Thomason College, advised its transference to the Education Department in order that it might no longer be *isolated* from the general educational system of the provinces; and pointed out that "to assign to it its proper place in the general educational system would not, in their opinion, detract from its departmental efficiency." The full significance of this change was indicated by an assistant principal of the college, who, in a note thereon, wrote—

> "that whereas at the time the college was founded the engineering requirements of these provinces were confined to the needs of the Public Works Department, nowadays, owing to the establishment of factories, mills, etc., there is, or more strictly there is likely to be, a growing demand for men trained not only in what is known as the civil engineering branch of the profession, but in almost all the special lines, which the mechanical branch embraces and that, this being the sole engineering college in the provinces, it is desirable to utilise it for supplying not only such demand as there is, but of encouraging a demand, if possible, where it does not at present exist."

These proposals accepted by the Secretary of State.

As a result of the recommendations of the Colvin Committee, the Secretary of State in despatch No. 63, dated India Office, 21st December 1893, conveyed sanction to a scheme for the re-organisation of the Thomason Civil Engineering College at Roorkee, by transferring the control of the college to the Education Department, affiliating it to the Allahabad University, and placing it under a committee of management, which scheme was stated to be "well calculated to promote the efficiency of general engineering education in India."

Policy of expansion continued under Sir A. McDonnell.

Moreover, Sir Auckland Colvin's successor—Sir Antony McDonnell—definitely stated that it was the object of Government "to develope the college into a technical institute for these provinces which shall control, stimulate, and inspire technical teaching of all kinds." With this object in view two members of the Indian educational service were recruited from Home in 1897, to hold professorships at Thomason College, and it may be noted that both these officers had undergone a course of technical training in England.

Sir J. D. La Touche.

Under Sir James Digges La Touche this policy of expansion was further continued, and in letter No. 266, dated 27th August 1903, the Government of India addressing the Secretary of State said that the Thomason College was "developing into an industrial and technical institute which will control and stimulate teaching of all kinds in the United Provinces." As a result of this a third educational officer was recruited from England for service at Thomason College as professor of applied chemistry. This officer was informed by Sir Charles Lyall, Secretary in the Public Department at the India Office at the time of his appointment, that it was the policy of Government to develope the Roorkee College into a technical institution on the lines of the Colleges of the City and Guilds of London Institute.

TIPPLE, E. F.—*contd.*

Sir J. P. Hewett.

Subsequently in 1910, on the recommendation of Sir John Hewett, a fourth educational officer was appointed by the Secretary of State as professor of mechanical engineering. Sir Herbert Risley, in an interview at the India Office, informed this officer that his services were required for the development at Roorkee of an engineering school on the lines of that of the Manchester University and the Colleges of the City and Guilds of London Institute.

The above facts all indicate that it was intended by Government that the work of the college should not be confined solely to the immediate requirements of the Public Works Department, but that the interests of general engineering education should receive serious attention. With this object in view, not only was the staff, in its higher ranks, greatly strengthened, as indicated above, but also the college buildings and equipment were considerably extended and improved, and extra laboratories, lecture theatres, workshops, and quarters were erected at no inconsiderable expense.

The controlling authority responsible for the direction of the scheme.

For the success of such a scheme of expansion and development, it is of fundamental importance that the controlling and directing authorities should be capable of grasping all the educational complexities involved and of according them sympathetic treatment. The actual controlling authority, however, was the College Committee of Management which has always been presided over by the Chief Engineer to Government, United Provinces, Buildings and Roads, who is also Secretary to Government, Public Works Department. Engineering interests are further represented by two prominent administrative engineering officers of a Government railway. On the other hand, educational interests have been represented solely by the Director of Public Instruction who is not a secretary to Government. The principal of the college, who ordinarily would be a further educational safeguard to ensure the practical soundness of the measures advocated and approved by the committee, has never been able to do this, owing to his being an officer devoid of any educational experience.

Value of the educational results produced.

A very brief examination is all that is necessary to show that the actual value of the educational developments hitherto achieved under the Colvin scheme of expansion, is extremely small, but, at the same time, the investigation will indicate that this has resulted from misdirection due to the inability of the controlling authorities, to appreciate the value of educational experience. The Colvin policy obviously aimed at developing Roorkee on the lines of modern British engineering schools, but the educational organisation necessary for this has never been reproduced at Roorkee.

Under Colonel Clibborn.

Under Colonel Clibborn, the first principal to hold charge of the college under the reorganisation scheme, the only educational developments which occurred at Roorkee were of a definitely low grade type. They consisted of industrial and mechanical apprentice classes, such as would have been admirably suited for the industrial schools which the Colvin scheme contemplated founding at scattered centres throughout the provinces, but which were entirely unsuited for inclusion in the work of an engineering college. Colonel Clibborn's work, in this connection, was definitely discredited by the Government of India in their resolution, dated 14th January 1904, and subsequently the local Government in letter No. 601, dated 20th March 1909, clearly stated that Thomason College should be reserved for higher grade technical work as distinct from the low grade work for which provision was made at the industrial schools. This misdirection of educational effort, for which the controlling authorities at Roorkee were responsible at the very time when the Colvin scheme was being launched, resulted in the loss of more than fifteen valuable years in the development of a sound scheme of technical education in these provinces.

Under Lt-Colonel Atkinson, R.E.

Colonel Atkinson continued the work on the lines of his predecessor, and concentrated on the establishment of an automobile driver class at Roorkee, which, together with the mechanical apprentice classes, started under Colonel Clibborn, has been recently transferred to the Technical School, Lucknow. Colonel Atkinson also established, at Roorkee, classes for training operatives in spinning and weaving, and these classes are now awaiting transfer to Cawnpore as soon as money for this purpose is available.

TIPPLE, E. F.—*contd.*

Entire responsibility for this misdirection does not rest upon the principal alone: it must be equally shared by the College Committee of Management upon which, as already indicated, the influence of the Public Works Department predominates. These result indicate mismanagement and misdirection

The only actual development, which can in any way be regarded as a legitimate expansion for an engineering college, is that which was instituted by Sir James LaTouche when starting the technical classes at Roorkee in 1906. The full history of these classes has already been submitted among the evidence from other members of the college staff and forms another, and striking, illustration of the lack of educational foresight on the part of the controlling and managing authorities at Roorkee. These authorities, since the inauguration of the Colvin scheme, have been responsible for certain expansions at Roorkee which have now been recognised as educationally unsuited to an engineering college, and which have caused a delay of fifteen years, in the development of the industrial schools, the need for which was first realised by Sir Auckland Colvin from the growing industrial requirements of the provinces so far back as 1890. Moreover, these same authorities, in the case of the technical classes, have mismanaged the only educational development really suited to the status of an engineering college.

It is clearly evident that, under the Colvin scheme, as originally formulated, it was intended to place Roorkee under educational control. The need for such control is obvious from the evidence given above. It is also clearly evident that the recommendations of the Colvin Committee advocated the procedure which has been successfully followed in engineering colleges in the West. Need for educational system of control as formulated by the Colvin Committee.

It may be argued that the educational system of management which has proved itself best suited to conditions prevailing in British engineering schools is not applicable to India, where the institutions in question are controlled by Government, but this position can scarcely be justified, since the Government engineering colleges in Madras and Poona are already placed under the control of the Director of Public Instruction who is the official President of their committees of management. Moreover, it is definitely laid down in these two cases, that all reports and proceedings of the Committee of Management or any recommendations made by the Board of Visitors, must be presented to Government through the Director of Public Instruction. In both these institutions practical engineering interests are amply safeguarded since it is the duty of the engineering members of the Committee of Management or Board of Visitors to visit the college in question, from time to time, and to report to the Director of Public Instruction upon its efficiency. It might also be argued that an engineer president would be better qualified for the discharge of the functions, which in both the above instances have been delegated by Government to the Director of Public Instruction, but one example will perhaps suffice to show this contention to be fallacious. A former engineer president of the Roorkee College Committee of Management visited Roorkee and examined the syllabus, time-tables and courses of instruction. Shortly afterwards orders were issued by the principal for certain modifications of these time-tables, etc., in accordance with the opinions and findings of the president, but practically all the changes then advocated had to be abandoned because they were totally unworkable from the educational standpoint. Moreover, Colonel Atkinson in a letter No. 4556, dated 30th November 1911, upon the subject was constrained to point out that the college course was a *general* course in engineering and was not specifically confined to the special requirements of the Buildings and Roads Branch of the Public Works Department. These facts, therefore, indicate the danger which arises from placing an engineering college under the immediate control of an eminent specialist engineer, who, during the long practice of his profession has completely lost touch with the complex educational questions involved. Such control clearly has a restricting and narrowing effect upon the educational value of the institution. In view of the success which has been achieved under the educational system of management in British engineering schools, and in view of the failure of the public works system of management here discussed, there can obviously be no valid reason for not following more closely the system of control existing in British institutions from which the ranks of imperial service engineers are now recruited. This system, moreover, was recommended for adoption at Roorkee by the Colvin Committee more than twenty-five years ago. Unsuitability of an engineer without educational experience.

TIPPLE, E. F.—*contd.*

Proof of this in the case of the R. I. E. C., Coopers Hill.

Perhaps the most striking example of the failure of public works control and management of an Engineering College is afforded by the case of the Royal Indian Engineering College at Coopers Hill. This College possessed an eminent educational staff and was started in 1871 at a time when there was admittedly no rival institution for the training of engineers in existence in England. The failure of Coopers Hill as an educational institution was particularly noticeable from the year 1883 onwards, when attempts were made to reorganise the college and to broaden its scope, with the object of converting it into a general school of engineering, on the lines of its many competitors, which were then coming into prominence. The published records indicate clearly that the system of management was alone responsible for the failure of this institution, which system stands in striking contrast to that found in modern engineering schools.

The records also show that the President of Coopers Hill was invariably an eminent engineer who received the appointment on his retirement from the Indian Public Works Department. He was devoid of any previous training in educational affairs such as is regarded as indispensable for the discharge of such duties in similar educational institutions. Moreover, the President himself took no part in the teaching work, and further, he possessed wide autocratic powers.

The educational results achieved at Coopers Hill indicate the unsuitability of public works control of an educational institution for the general training of engineers. These results may briefly be summarised as follows:—

> A certain number of eminent engineers were produced despite the system in vogue; the technical examinations laid down were not so stiff as those prescribed at the engineering schools of modern universities; a long tail of distinctly inferior men were passed out; the courses of instruction unduly emphasised subjects of little educational value for engineers, but calculated to fit men for immediate employment in the lower ranks of the profession.

Expert evidence for each of these statements is given in the appendix to this minute. Moreover, these unsatisfactory educational results are directly attributable to the system of control which was productive of violent oscillation in the educational arrangements of the college, and a consequent lack of educational continuity.

The obsolete Coopers Hill system still in force at Roorkee.

This unsatisfactory state of affairs is paralleled at Roorkee as can be seen from unnecessary alterations in the time-tables and syllabuses; in the establishment, abolition, or subsequent transfer of classes; and in the erection and modification of buildings. As already indicated, all these points are evidenced in the past history of the industrial draftsmen and computer, mechanical apprentice, automobile driver, textile, and various technical classes, with which Thomason College has been concerned during the past twenty years.

Up to the present time at Roorkee, as was formerly the case at Coopers Hill, the head of the institution has always been a military officer, and recently a retired public works official of high rank, who in no case has taken an active part in the teaching work of the institution. This is an anomaly for which no justification can be found. Under the system prevailing, administrative duties, instead of forming a mere adjunct of the educational work, are separated from it and become unduly elaborated. They are raised to a plane altogether out of keeping with an educational institution, supposed to be of university rank.

Moreover, under this system, any expression of criticism from a member of the educational staff, however mildly tendered, is apt to be regarded as an act contravening established authority; and the atmosphere pervading the institution, instead of being of an academic character as is the case at university engineering colleges in England, more closely resembles that of an orderly room.

Need for an authoritatively constituted Board of Studies.

The close analogy which exists between Coopers Hill and Roorkee is also exemplified in the matter of a board of studies. This indispensable item in the organisation of an engineering college was lacking at Coopers Hill until it was called into existence by an order of the Secretary of State a few months before the abolition of the institution, and only then as the result of powerful external educational criticism. An unofficial board of studies came into existence at Roorkee when the principal, after the first technical class fiasco, began to realise the educational difficulties attendant upon this important extension of the college work. This Board possesses no authoritative con-

TIPPLE, E. F.—*contd.*

stitution, and there is no obligation on the part of the controlling authorities ever to consult it. The only conclusion to be drawn from this state of affairs is that the experience of educational officers is deemed to be without value in matters which vitally concern the progress of the college to which they have been appointed, and even in connection with the work for which they have been specially recruited by the Secretary of State. Restrictive effect of existing system emphasised

The restricting and narrowing influence of public works control at Thomason College can further be noticed from the following extract from a speech delivered at Roorkee in July last on the occasion of the annual distribution of prizes, when the Hon'ble Mr. W. G. Wood, C.S.I., Chief Engineer and Secretary to Government in the Buildings and Roads Branch of the Public Works Department, and President of the College Committee of Management remarked :—

> "I have always looked upon Roorkee as the Indian equivalent of Coopers Hill and, as time goes on, I trust that Roorkee will become more and more so.... Further, in *limiting* the ambition and scope of the college, and *reverting*, to some extent, to the main purpose for which the college was originally founded, I find myself only able to congratulate you."

The limiting of the scope of the educational work of the college to the training of civil engineers, alone, is entirely contrary to the procedure adopted at engineering schools in England. These latter are founded upon as broad a basis as possible. Thus it is that departments of civil, mechanical, electrical engineering and applied chemistry co-exist side by side, and the thorough co-ordination of the work in these engineering schools makes both for efficiency and economy. The success of these institutions is undoubted, and this alone seems to constitute a cogent reason for developing the Roorkee College along the lines adopted at these more modern engineering schools rather than along the lines of an institution which had to be abolished because it was unable to compete with its more successful rivals. It was development along the lines of such modern British engineering schools that was undoubtedly recommended by the Colvin Committee in 1891.

Concerning the important question of apprenticeship, it is admitted that an educational institution, however efficient, cannot turn out finished engineers. A period of apprenticeship is necessary in order that these apprentice engineers may learn to apply the knowledge gained at college to the solution of practical engineering problems. Engineers who join the ranks of the Imperial service have all previously had this experience. It is in regard to this question of apprenticeship that the Roorkee engineers suffer when compared with Imperial engineers on their first joining the service. Although the first year's service of the Roorkee engineers on entering the Public Works Department is supposed to be a year of apprenticeship, in actual reality this is seldom the case. The following extract from a note written by a recent chief engineer may be quoted in support of this statement :— Apprenticeships.

> "An apprentice engineer is at present made too much use of to the detriment of his instruction. I always tried to give the men appointed to me full experience on some large work. But the executive and assistant engineers, under whom they were placed, did not always devote as much time to their instruction as was desirable, generally because an executive or assistant of the present time has so much work on his hands that he finds it difficult to find time to give much attention to young apprentices." Arrangements for those at present unsatisfactory in the Public Works Department

The fact that Roorkee apprentice engineers have to be equipped for immediate useful employment at entry to the Public Works Department has been one of the chief reasons put forward in the past for concentrating attention during the college course at Roorkee on subjects such as accounts, estimating, drawing, and surveying. This portion of their training is at once utilised on entry to the Public Works Department, but its educational value is extremely small.* Instruction in engineering design, which would enable such men later in their careers to rise to positions in the higher ranks of the service, is correspondingly curtailed. Professor Unwin, speaking in June 1911 at a conference of

Vide Sir Alexander Rendel's remarks in Coopers Hill papers, 1904.

TIPPLE, E. F.—*contd.*

the London Institute of Civil Engineers, convened for the purpose of discussing the training necessary for men who are desirous of entering the engineering profession, stated :—

> " An employer who takes into his works college students is, I think, often disposed to expect from them an immediate availability which is unreasonable..... It is not the main object of a college course to fit students specially for such work as will fall to them while in the lowest rank of their profession. The college course must contemplate fitting the student for his whole career and provide him with an intellectual equipment which will only gradually become useful as he rises to higher rank in his profession."

These remarks seem to apply with considerable force to the conditions prevailing in India, where the scope for employment of apprentice engineers is mainly limited to the openings afforded in the Public Works Department.

Bearing on this question, it may be noted that one of the chief fields for the training of apprentice engineers in England is to be found in the technical offices of large engineering firms where a considerable staff of experts is employed in connection with the preparation of projects, plans and estimates for new work. These technical offices afford valuable opportunities for the training of apprentice engineers and openings therein are much sought after. In the Public Works Department there appears to be no corresponding central technical office; plans for new work being drawn up in the scattered offices of executive and superintending engineers. In the drafting out of apprentice engineers to the Department attention seems to be concentrated on those places where actual construction is in progress, and thus the valuable training possible in the designer's office appears to be lost sight of.

A further point to notice is that the introduction of the Provincial service reacted detrimentally upon the status of the Roorkee engineer and consequently, upon the college itself. No matter how efficient the Roorkee engineer may be, his prospects in the Department are much inferior to those of the men who passed out of Roorkee previously to 1895. This being so, the college cannot be expected to attract the same type of student as it did in former years.

Conclusion. In the foregoing paragraphs an attempt has been made to indicate, as briefly as possible, the narrowing and restricting influence resulting directly from the public works system of control of an educational institution, which, in this instance, is looked upon as the model engineering college of the country. Although an attempt was definitely made to break away from this restricting influence in 1893, yet, it still predominates in the management of the Thomason College. During the past twenty-five years, it has hampered and stultified all attempts to broaden the basis of the educational work undertaken, and thereby has hitherto prevented Roorkee from developing along the lines which have proved so successful in all western engineering schools.

ANNEXURE.

Extract from the leading article entitled " The Lesson of Coopers Hill " which appeared in the " Indian Daily Telegraph," dated February the 1st, 1905.

* * * * * * * *

At its foundation, Coopers Hill had practically a clear field for the education of engineers, since it is admitted that no rival school was then in existence. Its teaching staff contained men who have made reputations as experts in the education of engineers, to prove which it is only necessary to call to mind the names of Professors Unwin, Minchin and Hearson. The great need for engineering schools in England at that time has been amply shown by the success of the later schools founded by the City and Guilds of London, the universities of Cambridge and Victoria, and many other educational bodies at Home. Yet despite these initial advantages Coopers Hill failed to establish itself on a sound basis, and has been completely outstripped in the professional race by these other institutions which came into existence at later dates. Every allowance may be made for such success as did attend the efforts at Coopers Hill; some sixteen hundred students passed through the college, and it is only natural that many of these have since become

TIPPLE, E. F.—*contd.*

well-known and eminent engineers. The true measure of its educational efficiency, however, can only be determined by comparison with rival institutions, and from the evidence given at the last Commission it cannot be doubted that the market value of the Coopers Hill diploma was much below that existing in the cases of other Engineering Schools. Thus Professor Hudson Beare stated that the technical examinations at Coopers Hill were not so stiff as those at Edinburgh University, and that although the men at the top of the Coopers Hill lists were as good as the top men at other institutions, yet there was a considerably longer tail of inferior men * distinctly below the average. Consequently it must be admitted that Professor Minchin asserted with some truth that "the success of the college in sending a number of good men to India was rather in spite of the system than anything else." Under such circumstances the college as an educational institution must be regarded as a failure, and although it turned out a few good men every year for the guaranteed appointments, its educational efficiency has been extremely small.

In endeavouring to discover the cause of the disaster the capabilities of the teaching staff is naturally the first point to be regarded. Here we meet at once with the names of men well-known in the educational world at Home, and whose abilities are held in high esteem by many recognised experts, as was very clearly shown at the time of the compulsory retirement of several members of the staff shortly after Colonel Ottley's appointment as president. Furthermore Professor Unwin, who was on the staff for thirteen years, has been very largely responsible for the success of the Technical College of the City and Guilds of London which he joined on leaving Coopers Hill, and it is consequently impossible to blame the teaching staff for the failure of the college to hold its own. It is when we examine the system of management that we discover the most startling diversity between the methods at Coopers Hill and that adopted at the colleges of universities and other educational bodies. At Coopers Hill the president has always been an officer devoid of any previous training or experience in educational matters such as would be regarded as quite indispensable for the proper discharge of his duties at any other educational institution. Frequently he has been an officer who has taken no actual part in the teaching work of the college, and concerning this system it was stated before the Commission that "until eighteen months ago.....the absolute control of everything—even of the educational system of the college was in the hands of the president and the presidents were men who had had no experience of educational matters. The result was that the college oscillated somewhat violently from one *régime* to another—one president thought one thing important, and another thought a very different thing was important and so on." Under such circumstances it is not surprising that the college course lacked that thorough co-ordination between its different branches which is so essential a factor for success in any educational scheme. Ill-matured plans for changes and extensions could be forwarded to the Secretary of State for sanction without being subjected to careful scrutiny by experts capable of judging each separate item in its proper relation to the whole. The waste of time, energy and money produced by such conditions, it is impossible to estimate and failure of the college to maintain its position was a natural result.

If this system of management be compared with that adopted at the City and Guilds Technical Colleges, its deficiencies become still more strikingly evident. The system in vogue at these colleges has been evolved by Sir Philip Magnus, Professors Unwin, Perry, Armstrong, Ayrton and others, being an adaptation of the methods followed in the great German polytechnics which have done so much for the technical education of that country. Under this system the principal or president is a senior member of the teaching staff in charge of one of the three or four branches under which the college course is grouped, one professor with assistants being responsible for each branch. The professors form the

*The presence of this tail of inferior men is also indicated in the Commission's Report (1904) wherein it is recorded—

"We think, moreover, that inasmuch as *some* of the students may find difficulty in obtaining admission to the University or institution which they would prefer, owing to the fact that their instruction having been conducted on lines which would render it difficult for them to pass an *entrance* examination in the prescribed subjects, the Secretary of State should use his good offices on their behalf by representing to the University or institution the circumstances in which their education was interrupted by the closing of the R. I. E. C."

It is obvious from this that some of the students admitted to Coopers Hill could not be expected to pass the ordinary entrance examination of other engineering institutions.

TIPPLE, E. F.—*contd.*

College Board or Senate of which the principal is president, and this board is responsible for the educational system as a whole. All schemes for extensions or alterations must be passed by the Board before they can be carried into effect. Such schemes, if passed, are then laid before the Committee of Management by the principal as the representative of the educational staff, and the Committee, if the funds are available, sanction the expenditure. This Committee of Management is composed of the Trustees and business men in charge of the college finances, and is represented in the case of Coopers Hill by the Secretary of State. Under this system it is essential that the principal should be an educationalist, and that sanction should not be given to any expenditure for extensions or alterations until the plans for these have been duly passed by the Educational Board, by which means alone their educational efficiency can be guaranteed. In the case of Coopers Hill it is evident that each president has been in reality little more than a superintendent of office work or registrar posing as an educational expert and that in relation to the members of the teaching staff he has not been *primus inter pares* as would be the case at other educational institutions, but he alone has been held responsible for the whole of the college educational work. Consequently each successive president introduced just such changes and advocated just such developments as seemed desirable in his own private opinion, this being made clear in the evidence before the final Commission * * * *

APPENDIX IV-C.

A NOTE ON THE ENGINEERING COURSES AT THE THOMASON COLLEGE, ROORKEE, BY MR. H. P. JORDAN, PROFESSOR OF MECHANICAL ENGINEERING, THOMASON COLLEGE.

Of the courses of instruction at the Thomason College two only can be regarded as providing an engineering training in the sense in which that term is generally understood. These are the courses in civil engineering and in mechanical and electrical engineering.

Entrance examination to civil engineer class.

Civil engineering, entrance test.—The class in civil engineering recruits mainly for the Public Works Department and the course is mapped out to meet the supposed requirements of that Department.

Admission to the class is by competitive examination, the number of candidates being always in excess of the number of vacancies.

Certain qualifying educational standards are insisted on before admission to the entrance examination; the object of these being to secure that candidates have previously received a sound general education.

The aim of the entrance examination should be to select from the list of applicants those best fitted to profit by an engineering training. This object, however, is not secured by the present examinations for the following reasons:—

Mechanics, physics and chemistry, subjects of vital importance in a study of engineering, rank only equal in importance with French, Latin, Sanskrit, Arabic and Persian.

Students selected by such a test are necessarily of very unequal quality. Some have a very fair knowledge of elementary science, others enter the college without the most elementary grounding in the rudiments of mechanics and chemistry.

Proposal for a reform of the entrance examination, by the elimination of the languages and the substitution of compulsory mechanics, physics and chemistry, were submitted to Government some years ago but appear to have been shelved.

Course in civil engineering.

Course in civil engineering.—The course in civil engineering extends over three college sessions. It provides a fair training in civil engineering though certainly inferior, for reasons discussed below, to the training given at engineering colleges in Britain.

The main defect in the present course arises from the inability to grasp the fundamental fact that a college, no matter how well-equipped or how able its staff, cannot turn out finished engineers. A college cannot do more than provide a tuition in the principles of engineering which a student must learn to apply during an apprenticeship or pupilage on works.

TIPPLE, E. F.—*contd.*

To concentrate, in a college, on instruction in a mass of professional detail is to detract largely from the value of a collegiate course of training. Details of actual construction can only be learned, in a satisfactory manner, on works and any attempt to substitute, in a college course, instruction in matters of professional routine for tuition in general scientific principles underlying engineering practice, must produce unsatisfactory results.

This defect is very conspicuous in the civil engineering course at the Thomason College. An attempt is made to train students who, on leaving college, are familiar with the daily duties of an assistant engineer whether in the Buildings and Roads Branch or on canals or railways; and who are capable, moreover, of planning and executing an electric lighting scheme for a town.

The result is to provide the Public Works Department with recruits probably of immediate value in the Department but who, owing to the defects of their college training, are inferior in mental equipment to the product of any leading engineering college in Britain and are less likely to rise to the higher ranks of the profession.

Concerning this important matter, the opinion of Dr. W. C. Unwin, speaking* as chairman of a conference convened by the Institution of Civil Engineers to consider the education and training of engineers, may be quoted:—

> "An employer who takes into his works college students is, I think, often disposed to expect from them an immediate availability which is unreasonable. It is not the main object of a college course to make a student acquainted with the details of any particular business; that is the proper object of the first year or two of practical work. It is not the main object of a college course to fit students specially for such work as will fall to them while in the lowest rank of the profession.
>
> The college course must contemplate the fitting of a student for his whole career and provide him with an intellectual equipment which will only gradually become useful as he rises to higher rank in his profession. The view of the employer, who looks only to the immediate usefulness of the student, is a short-sighted one."

Mechanical and electrical engineering class.

Mechanical and electrical engineering class.—This class has under different names,† and with occasional breaks, been conducted by the college since 1906.

† 1906-1908—Technical class.
1910-1914—Higher division of the Department of Technology.
1915—Mechanical and electrical engineering class.

Recruitment has been gravely prejudiced by the lack of any continuity of policy in regard either to the methods of recruitment or to the standard required at entry.‡ A few students of good quality have, in spite of these drawbacks, passed through the class and are doing well. Had an effort been made to attract annually a few students fitted by their previous education to profit by the course of study laid down, it is highly probable that the class would now have been firmly established on a satisfactory basis.

The present position appears to be that students from the United Provinces and the Punjab prefer to attend the Victoria Jubilee Technical Institute at Bombay. This cannot occasion surprise to anyone familiar with the development of the class at Roorkee and the absence of encouragement or support from the authorities responsible for the launching of the scheme. The class under the name of the Higher Division of the Department of Technology was dubbed a failure by Government [Resolution 72-XV-308 of 1914, dated 12th January 1915], abolished and restarted under the name "Mechanical and Electrical Engineering Class" before a single student of the so-called Higher Division had completed the course. Between the abolition of the one and the restarting of the other class there was a break of one year.

Such action has not tended to restore the confidence shaken by the very unfortunate circumstances under which the class was first started in 1906. As a result, students are not forthcoming in satisfactory numbers and the majority of those entering the class at present are of a type not likely to profit by the training offered.

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* June 29th, 1911.

‡ A statement of the history of the development of this class was drawn up by the Board of Studies in November 1915, and forwarded to the College Committee of Management.

TIPPLE, E. F.—*contd.*

The course of study.—The college course now laid down extends over a period of three years. The confusion between college training and practical training on works, so apparent in the case of the civil engineer class, has been avoided in drawing up the course of study for this class since students after satisfactorily completing three years in the college are required to serve a period of two years' approved apprenticeship on works. The satisfactory completion of this apprenticeship is one of the conditions for the award of the certificate. In practice the college arranges these apprenticeships though it gives no guarantee to do so. Moreover, students are encouraged to spend their long vacation on works and the college has usually been able to secure for all such students an opportunity of doing useful and interesting work.

mmittee of nagement d staff.

College control.—Many of the defects noted above may be directly attributed to the college system of management. The principal is the only member of the college staff on the Committee of Management, so that, when educational questions come up for consideration, that body has no means of learning the views of the staff directly concerned.

Had the opinions of the teaching staff been placed before the Committee of Management and Government before orders were issued in 1906 for the formation of classes in mechanical and electrical engineering, it is highly probable that many difficulties would have been avoided. It is, for instance, difficult to think that Government would have ordered the recruitment of these classes had they been informed that no preparations had been made to receive them and that the staff, the equipment and the necessary college accommodation were inadequate.

incipal d Board Studies.

The principal has usually been an officer of no previous educational experience. He is assisted by a board of studies consisting of the heads of departments but this body has no official recognition and there is no obligation resting on the principal to consult it.

The principal has full power to alter any course of study against the advice of the professor responsible. This is open to grave objection and recently * actually led to alterations being made in the course of study of the mechanical and electrical engineer class, against the advice of the staff directly concerned, by the elimination of two-thirds of the course in mathematics while leaving untouched courses in mechanics and science; and to the drawing up of a scheme of examinations by which students were examined in subjects which formed no part of the course of study. The altered course naturally proved quite unworkable and was cancelled within a few weeks of its coming into force.

The foregoing facts clearly indicate the necessity for the adoption of the system already in existence at western institutions by insisting that all questions affecting courses of study and college discipline be under the control of a recognised board of studies sitting with the principal as president. The Board should also have an opportunity, if they so desire, of placing their considered opinion upon any question affecting the educational work of the college before the Committee of Management and Government. In other words the Board should be recognised as the responsible body to deal with the internal affairs of the college in the same way as the boards of study at colleges in Europe are so recognised and not as a body which may be consulted or ignored at the caprice of the principal.

APPENDIX IV-D.

NOTE ON THE COURSE IN CIVIL ENGINEERING AT THE THOMASON CIVIL ENGINEERING COLLEGE, ROORKEE, BY MR. G. LACEY, OFFG. PROFESSOR OF CIVIL ENGINEERING, THOMASON COLLEGE.

troduction.

The following note is devoted mainly to a discussion of the existing course in the Department of Civil Engineering at the Thomason College, the extent to which it meets Indian requirements, and the modifications that are considered necessary in order that such requirements should be met more fully. It will be understood, however, that proposals of this kind radically affect the other departments with which the teaching in civil engineering is co-ordinated. The passed students of the college stand or fall largely by their civil engineering training, and it is inevitable that, in an investigation of the system of education given at the college, the Department responsible for the teaching of civil engineering should receive particular attention.

* June 1915.

TIPPLE, E. F.—*contd.*

2. The standing of engineering colleges in India, relative to those at Home, has been much discussed, and it has frequently been stated that the Indian engineering colleges, of which the Thomason College is admittedly the first, provide a training in every way equal to the best engineering colleges at Home. Such opinions have been put forward mainly by those whose personal acquaintance with engineering institutions as students was made many years ago, when the present standard of instruction had not been attained. **Standard of instruction.**

3. The writer, in common with many assistant engineers now in this country, made his acquaintance with an engineering course at the Central Technical College, London, ten years ago, and has gauged the utility of this engineering training when subsequently employed on works in India. During his tenure of the post of professor of civil engineering at the Thomason College* he has been afforded an ample opportunity of judging the value of the course of instruction given, and is emphatically of the opinion that whatever may be said of the merits of the college, it is not at present the equal of engineering colleges in the front rank at Home. Such a statement is in no case a reflection on the very useful training that is given at the Thomason College. It must be borne in mind that the standard, set in British colleges, is a high one, and that, if we are to assert at the outset that Indian colleges are their equal, further enquiries of the Committee into the facilities for engineering education in this country would be rendered somewhat unnecessary.

4. The difference of a student of the Thomason College from a graduate of an engineering college at Home is not so much a matter of the knowledge that he takes away with him as of mental equipment. Much that is learnt by the student is necessarily forgotten, but the trained mind that he brings to bear on every engineering problem, with which he is subsequently confronted, is a permanent asset, and the development of this should be the main object of his course of study. In the opinion of the writer it is in this respect that the Thomason College falls short of similar institutions at Home. **Mental equipment.**

5. The doctrine, that the real and permanent asset of a student is not his acquired knowledge but his mental equipment and outlook, is by no means a new one. It has been stated in almost the same terms by a number of prominent engineers in both England and America. The writer may be permitted to quote Professor Whipple of Harvard University on this subject since his remarks have reference both to over-specialisation and mental training.

> "Generally speaking experience has shown that specialisation in our [American] technical schools has been carried somewhat too far. In the writer's opinion it ought only to be carried far enough to incite the permanent interest of the student and enable him on graduation to take up some particular line of work intelligently, and with such a degree of skill that he can earn a reasonable income during the early years in which he is getting his real experience in his chosen profession. In later years it is the effect of his general studies that makes for his success. In other words it is mental culture after all that counts."†

6. The college in the past has been primarily concerned in the production of recruits who will be immediately useful to the Indian State railways and the Irrigation and Buildings and Roads Branches of the Public Works Department. **Over-specialisation.**

In order that the student may be fitted for a post in any one of them, an attempt is made to give him a specialised training in all three. His time is largely occupied in acquiring knowledge, one half of which will ultimately be of no use to him. Finally, during practically the whole of his last term at college, the unfledged student is employed on a project which would in practice be entrusted to an engineer of some years' service, and, to complete his discomfiture, he is prohibited from asking the assistance of his professor since the project is also an examination. In other words the student in the second half of his third year, when he is most likely to profit by instruction, is left entirely to his own resources, and is deprived of professional guidance at a time when he is most in need of it.

7. It will be seen that a course of study, devised to include a full project, is badly handicapped for time when compared with a three years' course at Home. **The project and its effect on the college course.**

* Appointed 12th November 1915.
† Engineering News, October 31st, 1912.

Two reasons are urged for the project. Firstly, that it gives the students practical work to do; secondly that the man of originality asserts himself, improves his position on the examination list, and thereby his chance of an appointment.

The objection to the first statement is that it should be the business of the Public Works Department to provide the student with work of this kind in his apprentice year; to the second that it is primarily the duty of the college to train engineers, and that their selection (after a trial on works) is properly the function of their employers.

Students, it should be noted, are appointed entirely on their position in the final list. It is not surprising, therefore, that they should devote themselves to the acquirement of a transitory knowledge that will last them through their examinations. The student at the head of the list may possibly be the best in his year. He would be a still better man if he were trained differently.

ıor ,pects of ver-specia- ·tion.

8. The foregoing remarks are sufficient to show that there is a case against the over-specialisation of the present college course, and the misplaced effort to produce engineers of immediate utility. Mention has still to be made of the excessive time spent in estimating, and the detailed lectures which the students receive in Public Works Department accounts.

Estimating should undoubtedly occupy a more subordinate position than it does at present in the college course. As to Public Works Department accounts the writer made himself familiar with them in his first month of sub-divisional charge, and considers that this is much the best method of acquiring such knowledge.

epartment Survey ıd rawing.

9. The course in surveying is an excellent one and calculated to turn out a first class surveyor. The sole objection to it is that too much time is spent on it at the expense of training in engineering design. The course might well be curtailed without detracting from its efficiency, and by curtailment is understood the omission of the engineering project of which so large a part is devoted to surveying.

10. Drawing, as taught in the Survey Department, is divorced from engineering design instead of wedded to it. Here again the object of the present course is to turn out a first class draughtsman rather than a designer.

This state of affairs can only be remedied by transferring drawing to one of the engineering departments and recognising that it is merely a preliminary to engineering design.

ɔ-organi- tion of e college urse.

11. The aim of this note has been to show that sufficient attention has not been paid to the broad engineering principles in which every student should be grounded. If, however, by "broad basis" is understood a great variety of subjects the Thomason College syllabus should satisfy the most critical. The Civil Engineering Department alone is responsible for the courses in railways, irrigation, buildings and roads, bridges, reinforced concrete, water-supply and architecture. The writer considers that any increase in breadth of this kind would be accompanied by a lamentable thinness in parts of the instruction, and that the aim of any scheme of re-organisation of the college course should be concentration on the broad principles of engineering inherent in the course as it now exists, and the elimination of those parts of it as are at present over-specialised.

ınction the Board Studies.

12. If, as the writer is convinced, the existing course of study requires re-organisation, the task may possibly devolve on the Board of Studies, who, from their personal knowledge of the situation, are most adequately fitted to deal with it.

The Board of Studies has at present no official status, and until such time as it is recognised and accorded a position equivalent to that of similar bodies at engineering institutions at Home the direction of the college will become increasingly difficult.

Oral evidence.

GUPTA, B. C.

18th February 1918.

The witness was in agreement in most matters with the memorandum submitted by the Civil Engineering College, Sibpur.

2. *Connection with the University.*—There are at Sibpur two grades of teaching, one for the foreman and the other for the manager class, the latter slightly higher than the

GUPTA, B. C.—*contd.*

foreman class. At present there is no graduate course in mechanical and electrical engineering, but the witness felt that a strong effort should be made to attract Indians and Anglo-Indians to this work. The witness was not in favour of separating the higher ranges of study from the University. There should be a faculty of engineering composed of practical engineers and the professors in engineering. Indians appreciate the university connection. The degree popularises the profession.

3. *Preliminary training.*—There should be an entrance examination to Sibpur conducted by the college. This year 160 students applied for admission to the mechanical and electrical courses, but there were only 70 vacancies. Selection at present is mainly by the results of university examinations. The students, however, are not usually well-equipped for the course. The witness thought that the standard of the intermediate in science would be about correct for the admission test. A good knowledge of English is essential, but the study of English literature should not be laid too much stress on. The school training for an engineering course should be more practical than at present. Practical chemistry, physics, and elements of electricity and magnetism should be included in the school course—also knowledge of mathematics up to trigonometry, algebra and mensuration before application for admission into the Engineering College. Manual training would be helpful.

4 *Practical training.*—The witness then discussed whether a student having passed through some such reformed intermediate course should undertake a year's practical training or not. He saw benefits in the proposal and specially the opportunity of testing the boy's aptitude for engineering in general and for practical work in particular. On the other hand, he thought that the rigid imposition of such training would deter some students from taking the course. The only disadvantage is that this one year's break in the general education may have quite a detrimental effect on a young man's career in case he discovers that he is not fit for engineering as a profession. This one year's break may partly disqualify him for other professions, such as medicine, law, etc., where the age question is of considerable importance. Arrangements can be made for giving the practical training at the college. Messrs. Tata Sons & Co. and other firms would, he thought, assist in giving this practical training.

5 *Distinction between the upper and lower grades* —The teaching of the upper and lower grades in mechanical and electrical engineering can be conducted together so that the first three years of the two courses may be common. An *extra* year's course, perhaps *two* years, with a modified syllabus in the first three years in mathematics and science, than is the case at present can then be given for the upper-grade course. The witness admitted that there were some advantages in separating the upper from the lower work, but deprecated any drastic changes. This was a goal to aim at, when engineering becomes far more popular than at present, and when there are many more engineering colleges than at present, but to think of two separate colleges at present is out of the question.

6. *Offers of appointment.*—Certain offers of appointment, nine in all, had been made by the Tata Brothers, Sakchi, Bombay Hydro-electric scheme and the Cape Copper Co., but the witness could not supply the men from Sibpur. The posts were of the foreman type. So far, all the electrically and mechanically trained engineers from Sibpur college, have found very remunerative employment or have successfully set up in business, and even failed students, without exception, have found excellent billets: the demand at present is far in excess of the out-turn.

7. *Musalmans.*—There are about 5 Musalmans in the witness' department. The number of Musalmans is increasing.

N.B.—In electrical and mechanical engineering, a three years' diploma course, as at present, with a diploma given by the college, and not by the Joint Technical Examination Board, should soon come into existence.

The three years' course should be supplemented by a one, or even two years' degree course, conducted by the University, but controlled by a faculty of engineering consisting of the engineering staff of the college and two or three qualified professional engineers of standing. This faculty should have powers to alter the syllabus from time to time once a year if necessary

The absurd title of "apprentice" or "overseer" course should be dropped as soon as possible, and the word "*diploma*" substituted. The course, as at present conducted at Sibpur college, is far higher than what the word "overseer," implies, though nothing quite as much as what a "*degree*" course would imply.

TIPPLE, E. F.

18th February 1918.

Neglect of educational experience.—The witness stated that his personal experience had been entirely confined to Roorkee, and that his reasons for considering educational experience gained in India to be largely a wasted asset so far as Government was concerned, were detailed in the minutes submitted with his written evidence. He stated that an informal board of studies existed at Roorkee and was composed of the professorial staff. The Board received no official recognition and, in matters of educational importance affecting Roorkee, its opinion might or might not be asked.

2. *Admission to Roorkee.*—The witness held that the intermediate work was only of a school nature. The usual qualifications for admission to the entrance examination to the civil engineering class at Roorkee are the passing of the school leaving certificate examination, with certain specified optionals, the B.A. or the B.Sc. The intermediate examination is not recognised. There is a competitive entrance examination for admission to this class conducted by the college. The yearly average is about 60 candidates for 20 vacancies. Candidates who have merely attained the school leaving certificate standard, therefore, have little chance of success. Certain special State students are also admitted to the class, averaging 2 or 3 yearly. In practice, the real standard of admission is the intermediate. There is a maximum age limit of twenty-one. There are between 60 and 70 students in the Civil engineering classes, 80 in the upper subordinate classes and 80 lower subordinates. The witness could not give definite figures for the mechanical engineering class, for which the conditions of entry and arrangement of courses had been frequently varied since it originated in 1906. Details of these changes are given in several of the minutes submitted by the witness, to one of which is appended a report on these classes prepared by the Thomason College Board of Studies. The witness considered that the students entering this class at the present time are not quite of the same educational attainments at entrance as those of the civil engineering class. It is necessary to remember, in this connection, the guaranteed Government appointments reserved for the civil engineering class.

3. *Relation to the University.*—Courses in engineering, as distinct from courses in the routine practice of a trade, should be connected with university work provided that a faculty of engineering on which the teachers are largely represented, be empowered to determine courses and curricula. The presence of practising engineers on this body would be useful but the number of such engineers should not be sufficient to swamp the teachers. Engineering professors should have opportunities of keeping in touch with the latest practice of the profession. This would be ensured if consulting work were allowed.

4. *Position of an engineering college.*—It is an advantage for an engineering college to be intimately associated with a university. Close proximity to other schools of study is useful. Other things being equal, the witness would prefer Allahabad to Roorkee as the location of the engineering college in the United Provinces, but he could not contemplate the possibility of transfer. Proximity to a big industrial centre, however, which is essential for an industrial school, is of much less importance in the case of a technical college of university rank. The witness had not considered seriously the proposal to constitute one college for all India to conduct the higher teaching in engineering and did not consider himself in a position to put forward definite evidence regarding the advisability of adopting such a proposal. The matter had been discussed by two commissions, and the witness had expressed an opinion in his written statement; but it appeared necessary to decide the question in the light of the existing demand for engineering education in India. Upon the actual magnitude of this demand the witness was unable to make any definite statement.

TIPPLE, E. F.—*contd.*

5. *Separation of higher from lower grade educational work.*—The witness was opposed to an institution in which the higher and lower grades were taught. The teaching in the lower grade should be kept apart from the University and be placed under the control of some organisation which was in close touch with the engineering and industrial world. A neglect of the distinction between the two grades, technical education and industrial training, leads to confusion. The attempt of the English polytechnics to undertake the higher as well as the lower work tends to make the training in the lower grade too highly theoretical and to divorce it from important details of technical routine. Training in workshop practice is of fundamental importance at an industrial school; engineering laboratory work is of primary importance at a technical college. The witness quoted a letter from Sir Clement Simpson of Messrs. Binny & Co., Ltd., Madras, in support of his contention. An industrial school does not require so expensively equipped a laboratory, nor so highly trained a staff as is necessary at a technical college. The demand for the product of the school, however, will be much greater than that existing in the case of the college; more schools will be required than colleges. The presence of the higher and lower grades at one institution prevents any homogeneity in the academical life of the institution.

In short, the witness held that the higher grade teaching should be conducted in one or more colleges; that, in each case, such colleges should be connected with a university; and that the college teaching should be entirely separated from the lower grade teaching.

6. *Organisation of the lower grade teaching.*—In the lower grade the opinions of commercial employers of labour are of considerable importance for the proper determination of the type of teaching required and for the successful organisation of the industrial schools at which it is to be provided.

7. *Recruitment of the staff.*—The witness approved generally the idea of appointments under the University for short periods of time after a period of probation and with possibilities of private practice, and a gratuity at the end of service; but felt that a man might lose touch with the work in England and that, with such reorganisation, service conditions might prove embarrassing. He had not considered such a proposal before and therefore felt some difficulty in expressing an opinion. He admitted that it might be beneficial to a professor to have the opportunity of breaking free from the service system and seeking other employment.

He desires, now, to point out that if higher education be organised under these altered conditions, there will be danger of the opinions of such short service educationists being largely discounted on the ground that they are imperfectly acquainted with "conditions in India." In this way the direction of educational policy will remain, as in the past, almost entirely in the hands of an administration animated by a "spirit, which so long as it prevails in official quarters, will effectually bar the way against any real educational reform." (*Cf.* Sir Henry Craik on Indian education, *vide* pages 10, 15—18, Minute on Indian Education submitted by the witness with his written evidence.)*

8. *Employment of Indian engineers.*—The chief object of the engineering colleges hitherto has been to train recruits for the Public Works Department. If the training of engineers rather than recruitment to the Public Works Department became the chief objective, then the preparatory training as well as the organisation of the colleges may need alteration. In regard to the preparatory training, the witness approved the proposal that boys might, up to the present intermediate stage, be given a sound secondary scientific education including a knowledge of colloquial English rather than English literature, such training being given in institutions distinct fromthe engineering colleges and preferably in secondary schools. After such a preparatory training and before entering an engineering college, it might be an advantage if facilities could be afforded for a short preliminary practical training in shops. There should, however be a good deal of elasticity in the system. It would also be necessary to arrange at the industrial schools classes whereby exceptional students at these schools could carry their general education approximately up to the present intermediate stage, and thence proceed to an engineering college. A boy who has shown great intellectual promise at an industrial school, together with considerable technical ability, should not be debarred from going to the University to continue his engineering education.

* Pages 72-73.

IV. EUROPEANS AND ANGLO-INDIANS, UNIVERSITY EDUCATION OF.

General Memoranda.

WOOD, The Hon'ble MR. W. H. H. ARDEN.

The number of European and Anglo-Indian boys who proceed to a university education from secondary European schools in India is not large; it is not so large as it is desirable that it should be.

Europeans that are only temporarily resident in India, usually send their children to England at an early age; some few may send their children to local schools in India for a few years.

Of late years there has been a steady increase in the number of Europeans coming out to India to occupy comparatively subordinate positions in trade and commerce and in industries. Europeans of this class tend to become domiciled, and in most cases are compelled by circumstances to educate their children in India.

On the other hand, a small proportion of the more well-to-do domiciled Europeans and Anglo-Indians send their children at a comparatively early age to England for education, and a larger proportion send their children to England at an age, say, from fourteen years onwards, to complete their school education, and to receive technical, or professional, or university education.

Since the war began many children who would ordinarily have gone to England are being educated at hill schools and other schools in India.

But the great majority of the children of the domiciled European and Anglo-Indian community receive the whole of their education in India. They are born, brought up, and, with the exception of the few who, by sheer ability and force of character, do exceptionally well, live and die in India.

They are, in fact, natives of India, and it seems to me to be in the interests of India to make the best of them that can be made.

The community in question is not a "bookish" community. I do not think that the people composing it have, as a rule, much sense of the value of education for its own sake. Of course they realise that education is necessary in order to enable their children to earn a living, but the average parent removes his son from school as a matter of course the moment he sees his way to securing for him what he regards as a reasonably satisfactory start in life.

My knowledge of the domiciled Europeans and Anglo-Indians, both as boys and men, leads me to believe that in the members of this community India has an asset that has not hitherto been made the most of. I frequently meet members of this community who have done well in life but in a large number of such cases it has seemed to me that these men could have gone further, and done better, had they had, to begin with, something more of a liberal education. The members of this community have positive qualities that are not too common in India, which it is desirable to utilise to the best advantage by associating them with a fuller training of mind and character.

I think it would be well to induce a larger proportion of the promising youths of the community in question to proceed to university education. At present a university career as a possible and desirable sequel to a school career is not sufficiently before them. Some progress has been made during the last year or two in educating the public opinion of the community in this direction. It is being realised that if Anglo-Indians are to hold their own they must begin life with a better educational equipment.

But it will be necessary, if university education is to be encouraged among Europeans and Anglo-Indians, to provide more assistance in the way of scholarships, and to make the facilities for it more attractive and more obvious by the provision of special hostels for European and Anglo-Indian students with adequate supervision and tutorial assistance.

V. EXAMINATIONS AND APPOINTMENT OF EXAMINERS.

General Memoranda.

Ali, Nawab Nasirul Mamalek, Mirza Shujaat.

Students in India who pass the senior Cambridge examination have to go through a two years' course for the intermediate in arts examination. At Cambridge, however, such students may prepare for the B.A. I think the same system should be adopted in India, as in Cambridge, and a student who has passed the senior Cambridge should be allowed to sit for the B.A. examination of the University.

Das, Kedarnath.

It is desirable that the Commission should make a definite pronouncement regarding the appointment of examiners. These appointments have been regarded in the light of University patronage to be distributed by the executive, as widely as possible. These appointments have always been in the gift of the Syndicate. Before the new regulations came into force, the members of the Syndicate never accepted examinerships, and even if any one was specially requested to do so, he gave his services without any fees. Under the present regulations a special clause has been introduced by which members of the Syndicate are not debarred from acting as examiners and receive fees.

It has also been held by certain members of the Senate, that examiners *must* be changed after a certain period, say two or three years, even if a good man is not available after that period to replace the former examiners. Distribution of university patronage again! The question is never looked at from the point of view of having the best man available for the work, but to have any man irrespective of his fitness for the appointment. It has been seriously stated by a former dean of a faculty that *any* graduate is capable of performing the duties of an examiner!!!

I am decidedly of opinion that examiners should be appointed with the sole object of securing *the very best man* available for the remuneration offered by the University, and not with the object of distribution of patronage to as many men as possible, irrespective of their possession of the requisite qualification. If the very best man offers to give his services year after year, we should employ him.

Ghosh, Rai Hari Nath, Bahadur.

In order that all might have a chance of getting a fairly good grounding in general education, the practice of allowing a choice of subjects should be abolished up to a fairly high standard and to attain this object I would certainly bring back the old F. A. The division of the same into I. A. and I. Sc., has, in my experience, lowered general educational efficiency so far as individuals themselves are concerned. I must admit that such a division has served the purpose of expanding education. But considering the fact that the popular zeal for education is so intense, we need not keep to a plan which will ultimately lead to the multiplication of a set of comparatively inefficient weaklings with more or less one sided knowledge. I have been shocked to find a boy going up for his B.A. and not knowing what the specific gravity of a substance is. Speaking of the present times, it has been a difficult matter to find a private tutor for our children, for the man who is a B. A., does not know science. The split in the pre-graduate state of education has thus raised an economic difficulty. The time thus has come to scan the result of changes that have been introduced in the university curriculum and to reconsider seriously the matter restoring the *status quo*, up to the F. A. standard.

HAMILTON, C. J.

HAMILTON, C. J.

I have emphasised in my answer to question 1, the radical defect which appears to me to lie at the very root of the higher educational problems of India, namely, a false method both of teaching and examination due to the defective quality of the teachers. If this defect is to be remedied it is necessary to consider with great care the proper mode of appointing university teachers and examiners.

I will consider first certain points bearing upon the appointment of the university teaching staff. There are two main questions that arise in this connection :—

(*a*) The terms of appointment.
(*b*) The mode of appointment.

The necessary conditions of a satisfactory teaching service are, in the first place, to attract a sufficient supply of able young students from among whom the junior members of the staff may be recruited. In the second place, it is necessary to offer sufficient inducement to attract into university service and to keep those capable of filling the higher teaching posts. With regard to the first point, I am strongly of opinion that junior members of the teaching staff should not be appointed from among such recent graduates as have had no further training than that implied in the possession of a master's degree. Again, junior members of the University teaching staff should not, as a rule, be appointed from among those of the staffs of schools or colleges who have done no further university work than that involved in taking their degree. Research under a senior professor should be regarded as a normal condition precedent to a university teaching appointment. A stage is therefore required in the educational career between the taking of the final degree and the beginning of work as a university teacher. Experience seems to show that a sufficient supply of able students devoting themselves for a period of say two years, to independent work of a research character will not be forthcoming in the absence of an adequate economic inducement. If the inducement takes the place of an appointment as a junior lecturer responsible for preparing the under-graduates in a part of their degree course there is great danger that the students will suffer through the immature work of these lecturers. The achievement of a high place in the degree examination is not a guarantee of the qualities necessary in a teacher. In any case teaching for a degree requires experience which a recent graduate can scarcely be expected to possess. If one of the chief qualifications of a teacher is a power to stimulate thought and to treat his subject with some measure of independence the teacher himself must have had a further opportunity of developing these powers than can be found in his under-graduate career The only solution therefore is to attract a supply of the abler graduates and to subject them to say, a period of two years, in which their quality as research students and as expositors of their subject may be tested, without imposing upon them the actual burden of teaching which would be a hindrance to themselves and an injustice to the students. The only way of achieving this object is to have a sufficient number of fellowships or research studentships adequately endowed. From among these University fellows the junior members of the staff will be recruited. Even then it is necessary to insist that appointments to junior lectureships should, in the first instance, be for relatively short periods; say for terms of two years. During this period their work should be tested by senior members of the staff. This could be done if the pupils under the charge of the junior lecturers were subjected to sessional examination, or were obliged to submit occasional essays to a senior member of the staff. Those who had proved sufficient capacity as junior lecturers should then be eligible for appointment to a higher grade in which the term of appointment should be considerably longer and in which the salaries should be sufficient to retain in the service of the University those whose abilities would enable them to earn high salaries in administrative service outside. Above these again there should be a grade of senior professors.

Regarding the senior professorships, I think it is of great importance to insist that they should not necessarily be recruited from the ranks of the existing university staff. The present conditions of India must be borne in mind. If real progress is to be achieved in the work of Indian universities, implying the establishment of a new tradition as to the method of learning and examining, it is imperative that a sufficient number of men capable

HAMILTON, C. J.—*contd.*

of establishing this tradition should be enlisted. I am very far from suggesting that such men must necessarily be non-Indians. It cannot even be asserted as an absolute rule that they should have been trained outside India. At the same time I believe that for some years to come a large infusion into Indian universities of able teachers trained in the best schools of the West is essential. It must be remembered that Indian graduates are looking more and more to high Government appointments where their success or failure will depend upon the possession of initiative and breadth of outlook. If the higher ranks of the public services are not to be recruited entirely from among those who have received a western training, it is the more necessary that in the Indian universities themselves should be found in considerable numbers those familiar with other than purely Indian methods and Indian ideas. If this be admitted I think it follows that there should be a considerable number of posts held by men who have already proved their capacity as students and teachers outside India and the question arises how these appointments may best be made. In my opinion, the Senate of the University may possibly not be the best body to make the choice. The Senate is not unlikely to be influenced in favour of local candidates. Again, a large body like the Senate is not necessarily the best judge of academic qualifications. To leave the appointment to the Senate subject to a Government veto is also unsatisfactory. If the veto is exercised it reflects both upon the man vetoed and upon the Senate in a way that is undesirable. Having regard to the conditions and the needs of the situation I should suggest that the appointment to the senior professorships should be in the hands of Government entirely and that these professors should be made members of the Government educational service in a special grade. This grade should not be recruited from the other grades of the Indian educational service who may be engaged in work outside the University.

With regard to junior appointments, they should be made by the Senate on the recommendation of the Academic Council of which the senior professors should be *ex-officio* members.

With regard to the appointment of examiners, it is clear that the method to be recommended is largely dependent upon the character of the university organisation that may be supposed to exist. It must not be thought that by any modification of the mode of appointing examiners defects can be removed which have their foundation in the defective character of the examination itself. If the nature of the present matriculation examination be considered, it will at once be seen that it serves two purposes which are quite distinct from each other. On the one hand, the matriculation examination serves to mark the successful completion of the school education. On the other hand, it serves as the entrance test imposed upon those anxious to pursue a course of university study. I think it will be clear that these two purposes are very different and from the nature of the case cannot properly be fulfilled by the same kind of examination. In all countries the numbers attending the secondary schools are very large in proportion to the numbers subsequently completing a university career. Further, I think it may be argued that as many pupils as possible should be encouraged to complete a school education whatever be their standard of attainment. The character of the school final examination should be so conducted as to mark the satisfactory completion of the normal school course by the normal scholar who has reasonably benefited by his opportunities. Of course the examination may also differentiate between those of normal and those of higher ability. The standard, however, must be determined by the intellectual attainment of the typical scholar. It is the pupils themselves that really set the standard and it is not desirable unduly to restrain the number of pupils in order to improve the standard of examination.

On the other hand, the entrance examination imposed by a university ought not to be regarded as an end in itself, but as a means to ensure that those who are admitted as under-graduates possess both the necessary general education and the necessary ability to afford a reasonable prospect that the university course will be completed with success. The standard of attainment imposed by this test should be considerably higher than that reached by the normal scholar who completes the school course. It is obvious that there must be co-ordination between the work of the school and the University. The preparation for entrance to the University must be given in the school and it is not desirable to multiply examinations unnecessarily. It may be possible under certain conditions to recognise the school final examination as equivalent to the university entrance examina-

HAMILTON, C. J.—*contd.*

tion. In any case the University must have an entrance test which is distinct from the school final examination, both because in many cases there may be a gap between the time when a pupil leaves the school and when he seeks admission to the University, and because the University must have in its own hands the ultimate determination as to what students it will accept. It is not quite easy to determine the principles upon which an entrance examination to the University should be based. On the one hand, it might be argued that it is desirable to encourage as large a number as possible of the young men of a community to pursue their studies as far as they are able whatever may be the final standard of their attainment; in which case, it would be undesirable to place any restrictions upon entrance to the University. This position is more easily defended when the whole cost of the university career is borne by the students. But it is inevitable that the University itself should take into consideration its directly utilitarian function of turning out graduates qualified for certain positions in the ordered life of the community. It is undesirable from the point of view of economy, both of money and effort, where the university organisation is maintained out of public funds to any large extent that numbers of under-graduates should be received who have little or no prospect of qualifying for the avocations for which a higher training is a necessary preliminary. In this case, therefore, admission cannot be freely granted to all who are ready to try their luck. It must be reserved for those who have a reasonable prospect of success. Thus the numbers admitted to the universities and the standards imposed upon the students will in this case be determined by the abilities of those who are able finally to fill the professional and administrative posts for which a high training is required. It is a national waste for the State to prepare an unnecessarily large supply of candidates. It is sometimes said that in India university education should only be the privilege of those who are willing to pay for it. From a social point of view the justification for this theory rests upon the broad assumption that those who are able to pay are also those best qualified to fill the posts for which a university training is a preliminary. This assumption does not seem to me to be justified. I hold, therefore, that in India it is very definitely the duty of the State to bear, at any rate, a large part of the burden of University education, and, as I have suggested, this seems to carry with it the obligation of the university not to waste public funds by admitting students who are unlikely to be able in after life to justify the public outlay incurred on their behalf. Hence the entrance test should be fixed relative to this object. It follows that the entrance examination to the University will bear no necessary relation to the normal standard of attainment achieved at the end of the school career. The test should be so devised as to give a high percentage of final success in the degree examination and a fairly complete absorption of the graduates into the professions and administrative services of the community.

I will assume therefore that the question of the method of appointing examiners may be considered with reference, on the one hand, to an examination which serves as a test of the work done in the schools, and, on the other hand, in relation to the examinations of a teaching university leading to a degree. If the school final examination is no longer the university entrance examination there is no obvious reason why the conduct of the school final test should be in the hands of the University. The work of examining large numbers of school candidates, if it is to be distributed among examiners, the greater part of whose time is already fully occupied with other duties the number of such examiners must be very great if the results of the examination are not to be unduly delayed. This in itself is an evil. For it is probable that it will be difficult to find a very large number of examiners who are really qualified for their work, and, in any case, the task of maintaining a uniform standard will be much more difficult.

Again, there is much in favour of combining the work of school examination with the work of school inspection. I am therefore in favour of transferring the work of school examination to the Department of Education which should constitute a board of examiners which, if possible, should act for the whole of India. The staff serving under the Board should be a whole-time staff devoted to examining and the supervision of teaching in the schools. The staff should be recruited from among candidates who have had experience themselves of school teaching. In the case of the university examinations the appointment of examiners should be in the hands of the University and the examiners themselves should be members of the university staff, or examiners recognised by the Government

Board of Examiners. The appointment of the university examiners should be in the hands of the Boards of Studies subject only to the confirmation of the Senate. Neither the Syndicate nor the Senate should have the right to appoint examiners except upon the recommendation of the Boards of Studies.

HUQUE, M. AZIZUL.

University publications—reports, studies and lectures, etc.,—ought to be very cheap that they may reach a larger section of the people. And so should also be all Government publications. These publications have an educative value of their own. There cannot be any widespread intellectual curiosity until current facts and figures are brought within easy reach of the general public.

2. The University should permit casual studies and researches for all graduates by opening its classes and libraries for any casual term.

3. Instead of too many class lecturers for post-graduate students, M.A. students, if studying within the University, should—

(*a*) make investigation on particular problems under a teacher,
(*b*) study, preferably in groups,
(*c*) teach or coach under-graduates of the University.

4. Of late, a cry has been raised against the University by a section of the Senators, expressing alarm at the large percentage of passes—a cry that has now also been taken up by a section of the English press. I take it as very damaging to the best interests of the country that such a cry should be raised at all at this juncture of our history. Those who have raised this cry, have now forgotten that the reformed regulations of the University were introduced to abate the evil of a great army of failed candidates, which the Hon'ble Mr. Raleigh described as a curse to the country. If the result to-day is actually what was intended in 1903, surely, there is nothing to be alarmed at. The momentum of progress and enlightenment has not to be judged by merely the results of the University examinations. Failures are as serious as successes. The questions are: —Has the outlook of India widened? Are we preaching advanced ideas on the land? Have we been feeling for the people as a whole—are our movements directed towards popular education, progress and uplift? Judging the life of the University as an organic whole, no Indian has ever repented for what the University has hitherto done and stood for. The present system has liberated the Eastern mind from its static towards dynamic condition, from the stagnant condition of thraldom towards the moving path of renaissance. For this purpose, not only the highest, but all Western education has been useful. Reforms are needed that India may get such an education that would fit her to occupy that position which she is destined to take up in the morning twilight of the future. The progress of a nation is intimately bound up with its education. The wealth of Ormuz and of Ind is now a thing of the past, and in evolving any system we must make it as cheap as possible. Without paying too much attention to building, furniture, etc., we must first of all provide for those studies that would build up the India of the future as a prosperous and progressive agricultural industrial country in the British Empire with the lesson of the war writ large, *viz.*, autonomy, in her needs and requirements.

NOTE.—Attention is also drawn to my book—*History and Problems of Moslem Education in Bengal* published by Messrs. Thacker, Spink & Co.

Scottish Churches College Senatus.

With reference to the existing practice according to which students who fail in the Intermediate or B.A. examinations are required to re-attend classes in order to be allowed to appear again for the examinations, we desire to suggest that this practice should be altered.

We are of opinion that any student who has once been sent up for the examination should be allowed to appear in future years also without having to attend further classes; or at least without having to attend classes other than those in the subjects in which he has failed.

Scottish Churches College Senatus—*contd.*—SHIRRAS, G. FINDLAY.

The present arrangement whereby students are required to attend lectures covering the same ground as they have already gode over, encourages carelessness and inattention on the part of these individuals and is demoralising to the classes of which these individuals form part.

SHIRRAS, G. FINDLAY.

(1) The University problem in Calcutta (paragraphs 1 and 2).
(2) The difficulties which have to be faced in dealing with this problem (paragraph 3).
(3) The constitution of an ideal university in a city like Calcutta (paragraphs 4—8).
(4) An examination of the results of the Calcutta University examinations since 1900 as compared with those in other Indian universities (paragraphs 9 and 10).
(5) The number of under-graduates in Calcutta University as compared with those in other Indian universities (paragraph 11).

This memorandum deals with the university problem, the difficulties peculiar to a university in a large population like Calcutta, and also with the statistics of examinations of Calcutta University as compared with other Indian universities since 1900. The memorandum has no official character whatsoever. I am alone responsible for the statements which it contains. The views expressed are based mainly on one's experience as a professor of economics, as a university reader in Indian finance and currency, as an inspector of schools, as a member of the Senate for the last eight years, and also for the last four years as an employer of graduates of the University.

2. In trying to make up my mind as to what arrangements are best for a university such as ours, I have been hindered at the outset by the lack of any definite agreement as to what the essentials of a university in this country are, especially in a centre of a large population. In the past we have been attempting to solve two entirely different problems—the problem of an examining university on the one hand, and the problem of attempting to mould a university on the lines of Oxford and Cambridge. Sir Richard Temple in his book *India in 1880* defines an Indian university thus: "A University in India is a body for examining candidates for degrees and for conferring degrees. It has the power of prescribing text-books, standards of instruction, and rules of procedure, but is not an institution for teaching. Its governance and management are vested in a body of fellows, some of whom are *ex-officio*, being the chief European functionaries of the State. The remainder are appointed by the Government, being generally chosen as representative men in respect of eminent learning, scientific attainment, official position, social status, or personal worth. Being a mixed body of Europeans and natives, they thus comprise all that is best and wisest in that division of the empire to which the University belongs, and fairly represent most of the phases of thought and philosophic tendencies observable in the country. The fellows in their corporate capacity form the Senate. The affairs of the University are conducted by the Syndicate, consisting of a limited number of members elected from among the fellows. The faculties comprise arts and philosophy, law, medicine, and civil engineering. A degree in natural and physical science has more recently been added." In the last ten years a change has taken place, and the University has become something very different from what is understood by an examining university. It is, however, now beginning to be realised that the type of university such as that of Oxford and Cambridge will not suit Indian conditions, just as that type will not suit universities in other centres of a large population. Oxford and Cambridge are unique with one or two other exceptions among the three hundred or four hundred universities of the world. It is also now realised that we have failed to build up an adequate university because, among other reasons, we have been too much under the sway of the ideals and methods of some western universities, especially of Oxford and Cambridge, which have to deal with an essentially different and much simpler problem. Oxford and Cambridge are not dependent upon public funds for their maintenance, and their history, as pointed out by the Haldane University Commission, makes their govern-

ment by teachers and graduates reasonable, or at least explains it. The case of Calcutta University is different. It is a modern city university, which, if it is to flourish, must be, as it now is not, an integral part of the city, controlled by a body composed mainly of representative citizens supremely interested in its welfare. Its constitution and organisation must be conditioned by the peculiar difficulties which it has to meet owing to the large territory and population which it has to serve. The University of Calcutta, at the present time, has an area assigned to it of 376,000 square miles, and it serves a population of nearly 65½ millions. Notwithstanding the creation of Patna University, it has still the largest number of colleges, 29 per cent. of the total number of colleges in British India, and within its area there is 49 per cent. of the total number of high schools. The detailed statistics will be found in Appendix I. The following table summarises the position :—

UNIVERSITY.	Area assigned in square miles.	Population.	Colleges.	High schools.
Calcutta	376,402	65,480,716	56	854
Madras	237,159	59,766,897	48	227
Bombay	195,111	29,127,722	14	154
Allahabad	452,408	84,436,197	39	225
Punjab	394,138	32,015,118	25	180
Patna	111,881	38,435,293	11	103
Mysore	29,475	5,806,193	4	5

This table speaks for itself. At the present day Scotland has four universities, and feeds a population of less than five millions. Its universities have over 6,000 students and graduates. London University has a sphere of 2,800 square miles and serves a population of 8½ millions. Sweden, Norway, and Denmark, which have a total population of 11 millions, have half a dozen universities; Belgium with a population of 7½ millions has half a dozen universities, as has Holland. The magnitude of the population to be served by the University is, it will be seen, very great, and in the next two or three decades will continue to increase at a very rapid rate. This has to be remembered when revising the constitution. The University of Calcutta is also conditioned by the lack of efficiency of the secondary or high schools, which are unable to give a sound general education to those who seek a university career. Power of accurate expression and orderly thought are a *sine qua non* of the under-graduate student's work, but at the present time candidates come up from the high schools without a sufficient grounding. The University is also hampered by financial difficulties which preclude the entertainment of a staff which appears necessary for the undertaking of the instruction of large numbers of pupils who annually seek its degrees. Another feature of the University is that it is a university for the sons, and also to a small extent for the daughters, of those of very limited means, and it cannot suit itself "to skim from the surface of society the topmost layer of rich men's sons and scholarship winners," as do Oxford and Cambridge. We must also accept the fact that Calcutta University will not and cannot ever be a university of residential colleges. Little in the nature of Oxford or Cambridge is possible, and the hostel system can mean in this country very little more than a system of co-operative lodging houses. We are now beginning to see that the University cannot work well so long as the present relations between

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colleges and the University continue. We shall never organise a homogeneous University by connecting a number of independent institutions with a central degree-giving body. At the present time Calcutta University is pulled in various directions. It is attempting to fulfil the function of providing its students with a hall-mark in the nature of a degree without the infusion of any real university spirit. An examining board can never constitute a real University. As a collection of colleges the University finds its chief duty in supervising, however inadequately, the charge of youths between the ages of sixteen and twenty-five. Its function in this respect is similar to the supervision exercised over secondary schools by the Education Department. The University is finding it extraordinarily difficult to fulfil the ideal of giving the maximum of liberal culture owing to the overwhelming importance given at present to written examinations. The University is also attempting the departmental system with professors and lecturers, laboratories, etc., a system which is recognised in modern times as a distinct type of institution which plays an indispensable part in the organisation of modern industry. This latter ideal raises the whole problem of vocational training. The University has to aim at general culture and also definite vocational schools. In connection with the latter case, it should be remembered that vocational instruction and advanced courses of study may be multiplied indefinitely without providing university education. We have not that living intercourse between students and between students and teachers which ought to exist in a university. University teachers, like the students, do not feel they are included in a single corporate body, nor do the teachers feel members of a single professoriate with its attendant inspiration, mental freshness, and common intellectual life. We have not reached the ideal of the University depicted by Matthew Arnold in his *Higher Schools and Universities in Germany*, namely, "that of an institution not only offering to young men facilities for graduating in that line of study to which their aptitudes direct them, but offering to them, also, *facilities for following that line of study systematically under first-rate instruction.* This second function is of incalculable importance; of far greater importance, even than the first. It is impossible to overvalue the importance to a young man of being brought in contact with a first-rate teacher of his matter of study, and of getting from him a clear notion of what the systematic study of it means."

3. Next as to the difficulties militating against the establishment of a real university. Several of these have already been referred to in the previous paragraph. It has been pointed out that there is no unity of purpose and little university spirit, because it is impossible for any university to work well so long as the present relations between the colleges affiliated to the University exist. The University is connected by means of recognition to individual institutions which are of a very varying educational standard. The colleges and teaching institutions regard themselves, and are regarded, as the units of the university organisation. Internecine jealousy and competition exist, and each local institution, at least the larger of them, is striving to swell itself into a microscopic university. We shall return to this when dealing with the Constitution of the University. Among other difficulties may be mentioned:—

(*a*) The students who seek this training are not in most cases able to take advantage of a real university course.

(*b*) The under-graduates are not placed under the personal guidance of teachers of first-rate standing in the schools, because the University and the colleges cannot afford to pay professors the salaries which the Civil Services can.

(*c*) With one or two rare exceptions, teachers and students alike have not access to large libraries.

(*d*) No large degree of freedom in study is possible. The University lacks faith in its teachers, and, as a reference to the University Calendar will show, the minutiæ of study are laid down, and numerous books are prescribed or suggested for study.

(*e*) Lastly, the staff is not sufficiently specialised, nor is it sufficiently strong, as, for example, in economics, to allow university professors independent investigation in their own subjects. There may possibly be exceptions to this, but they are few and far between.

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4. The ideal university cannot be achieved without a thorough overhauling of the entire system which obtains. In the distant future, it may be possible to have three universities in Calcutta, a State University, a University of Calcutta, and for colleges outside Calcutta, a University of Bengal. This ideal, however, is perhaps at present impracticable owing to the terrible scarcity of teachers. It is hardly possible at present to get a competent staff even for one university. It seems necessary, therefore, to have one university for the present, and to separate the B. A. and B. Sc. honours from the B. A. and B. Sc. pass degree. The University might teach only the B. A. and B. Sc. honours and the M. A. degree, leaving to its affiliated colleges other than those intimately connected with the University, the teaching of the B. A. pass degree. Into the University should come those educational institutions which were established by the University such as the Law College, or which are strong enough in one or more ways to comply with the conditions which are to be laid down by the University. No institution should be considered strong enough to become a constituent college of the University unless it is able to provide the full course for the B. A. and B. Sc. honours. For some time to come, it will be necessary for the University to control affiliated colleges other than the constituent colleges of the University. Out of the 56 colleges at least 50 would be unable to do real university teaching. The University should control every one of these 50 colleges by insisting that appointments by colleges to the staff of these colleges should be approved by the University, and the University should have control over the finances of the colleges.

5. Students seeking admission to the University should have a better equipment, and in order that this may be attained, the matriculation examination should be recast. The matriculation examination as a test has failed, as the experts of 1906 who framed the regulations have also failed. As a test the matriculation examination is not sufficient to ensure that a candidate for a university career is able to profit by university instruction of every kind. The matriculation examination is regarded as the culminating point of high school education. It is, however, an insufficient test of attainment. It is one-sided, lending itself readily for mathematics, but it is an indifferent test for the thinker. It encourages a rapid memory and discourages the use of the ear and tongue, which are, especially in regard to English, of as much importance as pen and paper. Indians who have passed the examination under the old system are almost entirely unanimous in thinking that the test in the old days was a much more searching one than is now the case, and it is suggested that an examination partly of prescribed books and partly of unseen texts is the first necessity of reform. I should like to go further and suggest that a leaving certificate on the model of the German *Abiturienten-Zeugniss* which would attest that the scholar has lived the school life year by year and passed out of the school with the "course" complete, would be preferable. Such a certificate would certify not merely the attainment of a student at one critical moment, but by its comprehensive character it would take into account the entire school record. When a German inspector acting as a school examiner enquires into the attainments of the pupils and along with the teachers awards a leaving certificate, he is not merely a marking machine, but a free intelligence, coming into personal contact with candidate and teacher. His long experience gives him an adequate acquaintance with the public standard, and he supplements his own judgment by the opinion of the staff of the school who are in Germany trusted by public opinion Such a certificate would prevent the crippling of the initiative of the teacher. The objection to a school leaving certificate is that the inspection staff is inadequate to cope with the work, and it would have to be increased probably three or four times. The granting, therefore, of such a certificate would have to be entrusted to a larger body than the present Education Department, and it would have to be a large body which would have behind it the strong support of public opinion. It will be seen from the statistics of examination results referred to below, that the percentage of passes in the Matriculation has been high as compared with other Indian Universities, and this at first glance seems to call for an explanation as to why the University in order to get well-equipped students did not demand a much higher standard. It is the examination that is at fault more than the pupil. To any one who has visited high schools in Bengal, it would appear that the teaching of English is obviously imperfect. The teachers do not use the language out of school to any extent, nor do they find it possible to study English by the ear and

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tongue. In order to better the study of English and to devote more time to spoken English, it would be preferable for students to do their history and other subjects in the vernacular up to the Matriculation or Leaving Certificate, and to utilise the time thus saved to written and spoken English. The advantages would be two-fold. It would perfect the study of English as also of the vernacular. The intermediate examination stages may be part of the school course, and it would be advantageous if the Intermediate could be bifurcated, so that it will be the culminating point for those not seeking a university career (with a definite hall-mark of attendance), while for others it will be a hall-mark of fitness for a true university career. One thing, however, is certain at the present time, and that is this—unless the standard of entrance into the University is considerably raised, any reform within the University itself in the way of securing better university training will be largely nullified.

6. The teaching of the University should be grouped into departments and faculties. At the head of each department should be a university professor. So far as the Department of Economics is concerned, teachers are appointed who are not always experienced teachers or real experts in their subjects. In economics, for example, the professor has not, until recently, been able to get the assistance of expert lecturers. We require to follow the example of the London School of Economics or of Berlin where there is a fully equipped staff to deal with the various branches of the subject. In Berlin University there are at the present time five ordinary chairs of economics, and the occupants are more or less specialists in one or other branches of the subject. Sering, the senior Professor, is interested mainly in agriculture; Herkner, Schmoller's successor, is interested in social questions; Bernhard has a reputation of being a wonderful teacher in general theory; Schumacher is a financial specialist; and Sombart is an authority on the theory and history of capitalism. Schumacher, who is mainly responsible for public finance in Berlin University has travelled in the United States, was a civil servant both in Prussian and Imperial departments, and professor of economics of Kiel in 1899 and at Bonn in 1901. Specialisation is essential, and it would be necessary in order to get the most capable men, to compete with the salaries paid in the senior services of the country. At present the University does not attract men who have a first-hand knowledge of the subject, because it cannot afford to pay salaries which Government pays its civil servants. Another criticism which might be passed on the Economics Department is that little initiative is left to the professor or his assistants. The syllabuses are too ambitious, and the pupils are confronted with a large range of text-books. Speaking as an examiner in economics for the past eight years, I should like to emphasise that the greatest possible freedom should be given to professors (who should be real professors) and the false specialisation which now exists should be done away with. It is also necessary in order to preserve continuity of examination standards that there should be only a few examiners for each subject, ordinarily about half a dozen at most, probably less. Such examiners will be a body of picked men, the professors being examiners assisted by co-examiners from outside the Department. What has been said as regards the School of Economics would apply in the main to the teaching of technology and commerce. There is room for the teaching of technology and commerce in the Univeristy. I doubt whether the teaching of agriculture should be undertaken as Pusa, Poona and other places are already equipped for this work, and it would be preferable for the University to specialise in one or two schools rather than to dissipate its efforts over a wide field. If the Department of Technology is formed, engineering should be included. If commerce is taught, it should be given a separate faculty. In regard to the course for a commerce degree, economics, accounting, mercantile law, and economic history and geography should be obligatory on all candidates, and the course for the degree should extend for not less than three academical years. A full course in one or more modern languages such as, French, German, Japanese, Russian, etc., and a course in science of industrial and commercial importance such as chemistry and physics, including practical work, would be advantageous. One scientific subject only should be taken, or as an optional, a second modern language. English might be substituted by students whose native language is other than English. Another group of subjects, such as, higher economics, international law, banking, statistics, and imperial and colonial history should also form the latter part of the course, and, if possible,

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apprenticeship in a firm should be included. The main features of such a scheme should be decided upon after consultation with commercial and industrial experts.

7. Of the reforms, the most pressing need is the reform of the Senate, and the delegation of its power especially to faculties. The Senate of the University is not adequately representative of the City of Calcutta, as a senate of a city university ought to be, and it is too large and heterogeneous to be an efficient executive body. The Senate deals at present with the minutiæ of the university administration in a way that is altogether unnecessary. The Senate should be, like the university court of many modern universities, the governing body, whose supreme function should be its legislative power, and short of the interposition of Government, the only means of altering the constitution and government of the University. The control of the Senate over the entire management of the University should be exercised entirely by means of statutes (which should be few and simple) and regulations. Statutes would be passed at one meeting of the Senate and confirmed at a subsequent meeting in each case by a majority of not less than two-thirds of those present as voters. The Senate or Court would decide any matter referred to it by appeal from the Syndicate. It would appoint professors to the chairs that are, or may come to be, in the patronage of the University, and it would perform other functions similar to those at present enjoyed by the university courts in modern universities. The Syndicate should be the executive body of the University, as hitherto, and should have the management and administration of the University. It should deal with matters which are at present dealt with by the Syndicate so far as the main lines of administration are concerned, but it should delegate a very large portion of its powers to a council which might be called the "Academic Council." The Academic Council should consist of the Vice-Chancellor, the deans of the faculties, and selected teachers from the various schools of the University. More power should be given to the faculties and the departments of the University, especially to the former. If the Faculty is made the unit, and professors are compelled to work for the improvement of the Faculty as such, the result would be greatly to the benefit of the University. It will put an end to the disruptive forces in the University creating internecine jealousy and competition for students, which have been appositely termed the "instinctive megalomania" of the colleges. The head-quarters staff should consist, in addition to the Chancellor, who would be an *ex-officio* member of the Senate or Court, a Pro-Chancellor who would preside at the meetings of the Senate or Court in the absence of the Chancellor, of a Vice-Chancellor who would be a permanent salaried official and the chief administrative officer of the University. The Vice-Chancellor should be *ex-officio* member of the Syndicate and all its committees, and of the Academic Council and the faculties. The Registrar should be responsible for the registration of students and graduates of the University as well as Secretary of the Senate and Syndicate, and he should be the chief officer of the Vice-Chancellor's clerical staff. It would satisfy the *amour propre* if His Excellency the Viceroy, when no longer Chancellor, would be Visitor of the University. The constituent colleges should be concentrated, as far as possible, in one area. The present university buildings should include more suitable accommodation for the Senate, for committees, and for the head-quarter staffs. There should also be ample accommodation for a club house and for a large central university library together with a more suitable hall for the university convocation and large educational gatherings.

8. Before proceeding to an analysis of the statistics of passes, it is important to remember, by way of a caveat, the defects of these examinations. The Haldane University Commission summed up the position in regard to London University as follows: "All that is provided is a syllabus, and all that the examination can profess to test is a knowledge, at the time of the examination, of the subjects prescribed by the syllabus, because the candidate may get his knowledge in any way he likes. He may work hard and well, and he may have the best instruction, but the test of the examination affords no sufficient evidence of this. As far as it tests his knowledge or information alone, it can obtain evidence only of memory, and not even of lasting memory, because, in the case of some subjects at any rate, cramming is the most successful way of preparing for the test, and it is notorious that a good coach can enable a candidate even to dispense with cramming more than fragments of a subject prescribed. In some subjects the questions are more

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in the nature of tests of capacity than of memory, but, as Mr. Hartog points out, in order to afford evidence of capacity the standard of marking in the case of these subjects would need to be much higher than in the case of tests of memory. Whether it is reasonable or not to accept 30 per cent. of the full marks when you are testing memory, it is clear that if the question is intended to test a candidate's capacity to do a thing the percentage of marks required ought to be much higher. "A boy who can only do right five addition sums out of ten cannot add. A person who reads a thermometer accurately five times and inaccurately five times cannot read a thermometer. A person who understands nine-tenths of the words in an easy passage in a foreign language, with or without the use of a dictionary, but is at sea in regard to the meaning as a whole, has not brought his knowledge of the language to a useful point."* No doubt the successful candidates for external examination have to work hard. We do not suggest that the examinations are easy to pass; the large percentage of failures is sufficient evidence that they are not. But the large number of failures also proves that a wide syllabus of prescribed subjects with an external examination as the test of the information acquired, inevitably tends to uneducational methods of work, and that far too many of the candidates are only "having a shot at it," because there is a fair chance of scraping through a rather indiscriminating test with a minimum amount of knowledge and a turn of good luck."

* * * * * "We shall make recommendations which will dispense with the necessity of the syllabus, by ensuring the appointment of teachers who can be trusted with the charge of university education. Teachers who can be trusted with this far more important and responsible duty can also be trusted with the conduct of examinations, in so far as they are accepted as proper and necessary tests for the degrees of the University. But examinations, even when conducted by the teachers of the university, and based upon the instruction given by them, ought not to be the only tests for the degree. It is not right that the work of years should be judged by the answers given to examination papers in a few hours. It cannot be fairly tested in this way. However conducted, such examinations are an insufficient and inconclusive test of the attainment of a university education and when account is taken of individual idiosyncracies and the special qualities which examinations favour, and when allowances are made for the accidents which inevitably attend such limited and occasional tests, it appears to us only fair that due weight should be given to the whole record of the students' work in the University. If the academic freedom of the professors and the students is to be maintained—if scope for individual initiative is to be allowed to the professors and the students are to profit to the full by their instruction—it is absolutely necessary that, subject to proper safeguards, the degrees of the University should practically be the certificates given by the professors themselves, and that the students should have entire confidence that they may trust their academic fate to honest work under their instruction and direction. There is no difficulty whatever in the University providing for such control, regulation, and publicity as will be an adequate guarantee of impartiality, and of such a measure of uniformity as may be considered desirable."*

9. Appended to this note will be found statistical tables showing the results of examinations in Calcutta University as compared with other Indian Universities during the last nineteen years. The figures for the three new universities of Patna, Benares and Mysore for 1918 have been added to the tables.

Matriculation.—The total number of candidates who appeared at the matriculation examination of the eight universities in 1918 was 33,000, as against 21,000 in 1900. Of these nearly half (15,000) appeared in Calcutta University. The total number of passes in 1918 was 17,000 or 52 per cent. as against 8,000 or 38 per cent. in 1900. During the last nineteen years, the highest percentage of passes was 79 in Calcutta (1910), 66 in the Punjab (1917), 61 in Madras (1915), 63 in Allahabad (1907), and 57 in Bombay (1913) It may be noted that in Madras various forms of school final tests are recognised as equivalent to the matriculation examination. This accounts for the rapid decrease in the number of candidates appearing in Madras University since 1908 (*vide* Table 2). On the average of five years (1914—1918) it appears that in the matriculation examination the percentage of passes is highest in Calcutta University, the Punjab comes next with

* Final Report of the Royal Commission on University Education in London, Part II.

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a percentage nearly approaching that of Calcutta University. The remaining seven universities have a lower percentage.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	13,634	8,417	61·7
Madras	52	17	32·7
Bombay	3,793	1,458	38·4
Allahabad	3,8[illegible]9	1,136	29·6
Punjab	5,368	3,160	58·9
Patna*	3,6[illegible]9	1,666	45·9
Benares*	45	9	20·0
Mysore*	403	138	34·2

* Figures for 1918

Intermediate Arts.—The total number of candidates who appeared in the intermediate examination in arts in 1918 was 17,000, of whom nearly 5,000 appeared in Calcutta University. The total number of passes was 7,000 or 45 per cent. as against 2,700 or 40 per cent. in 1900. In this examination, Bombay stands first in respect of the percentage of passes. The highest during the last nineteen years was 73 in Bombay (1910), 64 in the Punjab (1918), 63 in Allahabad (1904), 54 in Calcutta (1918) and 46 in Madras (1903). The percentage appears to be slightly increasing in Calcutta and the Punjab. On the average of five years (1914—1918) it appears that in the intermediate examination in arts the percentage of passes is highest in Bombay University followed by the University of the Punjab. Calcutta occupies the third place, followed by Allahabad and Madras. In Benares University the percentage in 1918 was 69.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	5,761	2,719	47·2
Madras	4,532	1,282	28·3
Bombay	945	578	61·2
Allahabad	1,966	881	44·8
Punjab	,062	601	56·6
Patna*	830	421	50·7
Benares*	91	63	69
Mysore*	30	11	36·6

* Figures for 1918

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Intermediate Science.—There is no intermediate examination in science in the universities of Madras, Allahabad and Mysore. It was introduced in Calcutta University in 1909. The total number of candidates appearing in this examination in 1918 in the five universities of Calcutta, Bombay, the Punjab, Patna and Benares was 2,455, of whom 1,485 appeared in Calcutta. The total number of passes was 1,389 or 56 per cent. of the number of examinees. On the average of five years (1914—1918) it appears that in the intermediate examination in science the percentage of passes appears to be almost the same in the universities of Bombay and the Punjab. It is higher in Calcutta.

University.	Quinquennial average.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	1,263	724	57·3
Madras	No examination.		
Bombay	120	57	47·5
Allahabad	No examination.		
Punjab	424	211	49·8
Patna*	156	109	69·9
Benares*	55	33	60
Mysore	No examination.		

* Figures for 1918

B. A. (*Pass*).—There are two courses for the B. A. examination, the "pass" course and the "honours" course. There is no "honours" course in Allahabad, Benares and Mysore Universities. The total number of candidates who appeared in the B. A. (pass) examination in 1918 was 6,754, of whom 3,012 appeared in Calcutta. The total number of passes was 3,739 or 44 per cent. as against 758 or 31 per cent. in 1900. The highest percentage was 78 in Bombay (1903), 69 in Allahabad (1902), 59 in Calcutta (1913), and 56 in the Punjab (1918). The percentage is increasing in Calcutta, but it appears to be declining in Allahabad. These figures exclude Madras University, because in the case of that University it is not practicable to ascertain the total number of candidates for the purpose of calculating the percentage of passes. The figures under "total number of passes" shown against "B. A. (pass)" of Madras University in Table 2 relate to the total number of candidates who qualified themselves each year for the degree after passing all the divisions or parts of the examination.† A separate statement (Table 3) has been appended showing the number of candidates examined and passed in each division or part in the different years. On the average of five years (1914—1918) it appears that in the B. A. (pass) examination, Bombay appears to

† In the Madras University, a candidate has to pass in three divisions or two parts of the B. A. degree examination under the old by-laws or the new regulations, as the case may be, in order to qualify himself for the degree, and he may, at his option, take the examination as a whole or appear by parts in different years.

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have a generally higher percentage. Punjab comes next, and is followed by Calcutta and Allahabad. In Mysore University the percentage in 1918 was 52·6.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	2,822	1,293	45·8
Madras	..	..	..
Bombay	535	258	48·2
Allahabad	1,039	405	38·9
Punjab	923	430	46·6
Patna*	415	186	41·8
Benares*	89	30	34
Mysore*	76	40	52·6

* Figures for 1918

B. A. (Honours).—The total number of candidates who appeared in the B. A. (honours) Examination in 1918 was 1,077, of whom 413 appeared in Calcutta. The total number of passes was 786 or 73 per cent.—On the average of five years (1914—1918) it appears that in the B. A. (honours) examination, Madras University has a higher percentage of passes, Bombay and Calcutta coming next with an almost equal percentage. The percentage is low in the Punjab and Patna Universities.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	392	293	74·7
Madras	114	96	84·2
Bombay	233	179	76·8
Allahabad	No examination.		
Punjab	130	57	43·8
Patna*	17	9	52·9
Benares	No examination.		
Mysore	No examination.		

* Figures for 1918

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B.Sc. (*Pass*).—As in the case of the B. A. examination, the examination for the B. Sc. degree also has two courses, the "pass" and the "honours" course. The B. Sc. (pass) examination does not exist in Madras and Mysore Universities, and there is no "honours" course (although there is a "pass" course) in Bombay, Allahabad and Benares universities. The total number of candidates who appeared in the B.Sc. (pass) examination in 1918 was 728, of whom 359 appeared in Calcutta. The total number of passes was 396 or 54 per cent. as against only 10 or 67 per cent. in 1900. The highest percentage of passes was 100 in Bombay (1901), and in the Punjab (1902), 72 in Allahabad (1904), 65 in Calcutta (1916). The percentage of passes in this examination also, as in the case of the B.A. examination, appears to be increasing in Calcutta, but declining in Allahabad. On the average of five years (1914—1918), it appears that in the B.Sc. (pass) examination, the percentage of passes in Bombay is greater than in other Indian universities, the Punjab coming next, followed closely by Calcutta and then by Allahabad.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	352	194	55·1
Madras	No examination.		
Bombay	48	30	62·5
Allahabad	165	73	44·2
Punjab	52	29	55·8
Patna*	24	14	58·3
Benares*	18	6	33·3
Mysore	No examination.		

* Figures for 1918

B.Sc. (*honours*).—In the B.Sc. (honours) examination, which exists only in the universities of Calcutta, the Punjab and Patna, the total number of candidates appearing in 1918 was 153, of whom 125 appeared in Calcutta. The total number of passes was 108, or 70 per cent. The highest percentage of passes was 95 in Calcutta in 1908 and 75 in the Punjab in 1909. On the average of five years (1914—1918) it appears that in the B.Sc. (honours) examination, Calcutta has a higher percentage than the Punjab. The percentage in Patna University in 1918 was 80.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	131	94	71·7
Madras	No examination.		
Bombay	No examination.		
Allahabad	No examination.		
Punjab	20	11	55·0
Patna*	10	8	80
Benares	No examination.		
Mysore	No examination.		

* Figures for 1918

SHIRRAS, G. FINDLAY—*contd.*

M.A.—The total number of candidates who appeared in the master of arts examination in 1918 was 1,122, of whom 720 appeared in Calcutta. The total number of passes was 609 or 54 per cent. In 1900 the number of candidates was 329 and the number of passes 156, the percentage in this case being 47. The highest percentage of passes during the 19 years was 77 in the Punjab (1916), 76 in Allahabad (1914), 75 in Bombay (1900), 67 in Calcutta (1911), and 56 in Madras (1906). On the average of five years (1914—1918), it appears that in the M.A. examination, Allahabad has the highest percentage of passes, followed closely by the Punjab; Calcutta and Bombay come next. The percentage is lowest in Madras. In the Patna and Benares Universities the percentages in 1918 were 60 and 80 respectively.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	646	332	51·4
Madras	139	49	35·2
Bombay	110	53	48·2
Allahabad	92	64	69·6
Punjab	83	49	59·0
Patna*	10	6	60·0
Benares*	5	4	80·0
Mysore	No examination.		

* Figures for 1918

M.Sc.—There is no examination for the degree of master of science in Madras, Patna and Mysore Universities. It was introduced in the universities of Allahabad and the Punjab in 1908, in Calcutta in 1910, and in Bombay in 1914. The total number of candidates appearing in this examination in 1918 was 237, of whom 183 appeared in Calcutta. The total number of passes was 133, or 56 per cent. Calcutta University appears generally to have a lower percentage of passes in this examination than other Indian universities. On the average of five years (1914—1918), it appears that in the M.Sc. examination, the universities of the Punjab and Allahabad have a higher percentage of passes than those of Calcutta and Bombay.

UNIVERSITY.	QUINQUENNIAL AVERAGE.		
	Candidates.	Passes.	Percentage of passes.
Calcutta	144	75	53·1
Madras	No examination.		
Bombay	2	1	50·0
Allahabad	22	15	68·2
Punjab	14	11	78·6
Patna	No examination.		
Benares*	6	5	83·3
Mysore	No examination.		

* Figures for 1918

SHIRRAS, G. FINDLAY—*contd.*

10. It would appear from the above comparative statistics that the University of Calcutta, while occupying the first place in respect of the percentage of passes in the matriculation examination, generally fails to maintain that position in the higher examinations, and this seems to some extent to corroborate, *ceteris paribus*, the statement made above (paragraph 5) that the matriculation examination of Calcutta University has failed as a test of attainment for candidates seeking admission to the University.

Details of passes according to classes in each examination are given in the appended Tables Nos. 2 and 3.

11. *Under-graduates.*—Table No. 4 shows the number of under-graduates in the different faculties of the five universities in each of the last twelve years (1907—1918). The term "under-graduate" denotes one who has been admitted to a college, whose name is still on the rolls of a college and who has not yet taken a degree. It does not include those who having passed one degree proceed to another.

Number of under-graduates.

UNIVERSITY.	Ten years ago. 1909.	Five years ago. 1914.	1915.	1916.	1917	1918
Calcutta . .	10,230	22,531	24,135	25,787	28,257	26,759
Madras . .	5,741	9,508	10,305	9,914	8,522	8,495
Bombay . .	3,198	5,129	4,471	5,840	6,099	6,625
Allahabad . .	3,397	5,064	5,744	5,835	6,346	5,622
Punjab . . .	1,107	1,759	1,867	2,249	2,264	5,159
Patna . .	..	..	..	..	..	3,190
Benares . .	..	..	..	..	..	694
Mysore . .	..	..	..	..	81	521

The total number of under-graduates in Indian universities has shown a steady increase since 1907. In 1918 the total number was 56,544 or over two and a half times the number ten years ago. Of this total, 47 per cent. was in Calcutta University, 15 per cent. in Madras, and the remaining 38 per cent. in the other six universities combined. Almost 87 per cent. of the total number belong to the faculty of arts. Of the total number of under-graduates in Arts (49,728 in 1918), nearly one-half (22,425) were in Calcutta University, nearly one-sixth (8,108) in Madras University, and over one-third in the other six universities combined. Under-graduates in medicine numbered 2,917 in 1918, of whom nearly one-half (1,334) were in Calcutta University, over a third (1,063) in Bombay, and over a fifth (520) in the other universities combined. In the case of engineering, however, Bombay stands first with less than half (148) of the total number (376), Calcutta standing second with over a fourth (85). The Punjab and Benares are the only two universities which have under-graduates in "oriental languages and literature," the total number in 1918 being 398. In 'other faculties,' Calcutta had nearly 80 per cent. (2,915) of the total number of under-graduates (3,646) in 1918.

APPENDIX.

TABLE I.

Area and population of the territories assigned to the universities of India, together with the number of colleges and high schools in British territories.

University.	Territorial limits.	Area in sq. miles.	Population.	Colleges.	High schools.
Calcutta	British—				
	Bengal	78,699	45,483,077	51	733
	Assam	53,015	6,713,635	3	38
	Burma	230,839	12,115,217	2	83
	Indian States—				
	Bengal States	5,393	822,565	..	..
	Assam State (Manipur).	8,456	346,222	..	..
	TOTAL 1916-17	376,402	65,480,716	56	854
	TOTAL 1911-12*	491,000*	103,916,009*	63	692
Madras	British—				
	Madras	142,330	41,405,404	48	224
	Coorg	1,582	174,976.	..	3
	Indian States†—				
	Madras States	10,549	4,811,841	..	..
	Hyderabad State	82,698	13,374,676	..	..
	TOTAL 1916-17	237,159	59,766,897	48	227
	TOTAL 1911-12	291,966	69,679,440	35	202
Bombay	British—				
	Bombay (including Sind and Aden).	123,065	19,683,249	14	158
	Indian States—				
	Bombay States	63,864	7,411,675	..	..
	Baroda	8,182	2,032,798	..	..
	TOTAL 1916-17	195,111	29,127,722	14	158
	TOTAL 1911-12	195,105	29,117,115	15	138

* Included the area, population, etc., now assigned to Patna University.

† Mysore has been omitted although there are some institutions in the state still affiliated to Madras University.

SHIRRAS, G. FINDLAY—*contd.*

Area and population of the territories assigned to the universities of India, together with the number of colleges and high schools in British territories—contd.

University.	Territorial limits.	Area in sq. miles.	Population.	Colleges	Schools.
Allahabad	British—				
	United Provinces of Agra and Oudh.	106,402	46,835,108	31	166
	Central Provinces and Berar.	99,823	13,916,308	7	50
	Ajmer-Merwara .	2,711	501,395	1	9
	Indian States—				
	United Provinces States.	5,944	1,178,97[illegible]	.	..
	Central Provinces States.	31,174	2,117,002	..	..
	Central India Agency	77,367	9,356,980	..	..
	Rajputana Agency .	128,987	10,530,432	..	..
	TOTAL . 1916-17	452,408	84,436,197	39	225
	TOTAL . 1911-12	452,408	84,436,197	54	175
Punjab	British—				
	Punjab . . .	99,251	19,576,647	18	153
	North-West Frontier Province.	13,193	2,196,933	3	17
	Baluchistan . .	54,228	415,412	..	3
	Delhi . . .	573	412,821	4	7
	Indian States—				
	Punjab States . .	36,551	4,212,794	..	..
	North-West Frontier Province (Agencies and tribal areas).	25,500	1,622,094	..	..
	Baluchistan States .	80,410	420,291	..	..
	Kashmir . .	84,432	3,158,126	..	..
	TOTAL . 1916-17		[illegible],118	25	180
	TOTAL . 1911-12		[illegible],975,747	20	129
Patna	British—				
	Bihar and Orissa .	83,233	[illegible],490,084	11	103
	Indian States—				
	Bihar and Orissa States.	28,648	3,945,209	..	..
	TOTAL .	111,881	38,435,293	11	103

SHIRRAS, G. FINDLAY—*contd.*

Area and population of the territories assigned to the universities of India, together with the number of colleges and high schools in British territories—concld.

*together*ity.	Territorial limits.	Area in sq. miles.	Population.	Colleges.	High schools.
Mysore .	Indian States— Mysore State . .	29,475	5,806,193	4	5
	TOTAL .	29,475	5,806,193	4	5
Benares .	Residential . .	..	..	..	..

TABLE 2.

Results of different examinations of Indian universities held in the nineteen years 1900 to 1918.

UNIVERSITY		MASTER OF ARTS						MASTER OF SCIENCE						BACHELOR OF ARTS (HONOURS).					
			NUMBER OF PASSES						NUMBER OF PASSES						NUMBER OF PASSES				
		Number of candidates	Class I	Class II	Class III	TOTAL	Percentage of total passes	Number of candidates	Class I	Class II	Class III	TOTAL	Percentage of total passes	Number of candidates	Class I	Class II	Class III	TOTAL	Percentage of total passes
	1900	220	7	29	56	92	41 8							270	8	70	71	149	55 1
	1901	204	7	27	41	85	41 6							305	4	64	47	115	37 7
	1902	191	6	26	38	70	36 6							275	6	100	48	154	56 4
	1903	200	3	31	40	74	37 0							288	8	55	51	114	39 5
	1904	193	5	19	21	45	23 4							308	10	57	58	125	40 5
	1905	188	10	28	32	70	37 2	(a)	(a)	(a)	(a)	(a)	(a)	302	2	61	55	118	39·1
	1906	233	9	31	45	91	39 0							241	4	75	41	120	49 7
	1907	283	15	43	28	96	33 9							270	11	83	35	129	47·7
	1908	341	17	68	88	173	50 7							290	7	118	62	187	64 5
	1909	17	2	3	2	8	47 0							69	7	35	12	54	78 2
	1910	140	8	36	30	74	52 8	14	2	6	3	11	78 5	109	11	52	27	90	82 5
	1911	204	12	61	63	136	66 6	9	0	11	1	21	60 0	177	13	93	41	147	83 0
	1912	276	15	71	79	165	59 7	56	9	12	14	35	62 5	246	19	149	24	192	78 0
	1913	406	12	107	100	219	53 9	81	13	24	10	47	58 0	362	10	194	66	270	74 5
	1914	523	34	156	127	317	60 6	94	16	27	12	55	58 5	389	9	153	98	260	66·8
	1915	591	23	78	151	252	42 6	127	21	16	20	57	44 8	349	11	164	67	242	69·3
	1916	655	25	107	177	309	47 1	165	32	35	21	88	53 3	380	34	174	102	310	81·5

	1917	742	32	149	204	385	51·8	151	33	32	16	81	53·6	431	36	234	69	339	78·6
	1918	720	48	130	220	398	55·2	183	39	45	12	96	52·4	413	39	176	98	313	75·7
	1900	36	.	5	14	19	52·8												
	1901	22	1	2	7	10	45·5												
	1902	24	1	..	7	8	33·3												
	1903	38	2	6	4	12	31·6												
	1904	39	..	2	10	12	30·8												
	1905	25	..	2	4	6	24·0												
	1906	36	1	5	14	20	55·6												
	1907	34	1	3	10	14	41·4							(a)	(a)	(a)	(a)	(a)	(a)
	1908	42	1	6	7	14	33·3												
Madras	1909	62	..	1	19	20	32·3	(a)	(a)	(a)	(a)	(a)	(a)						
	1910	(a)	(a)	(a)	(a)	(a)	(a)												
	1911	58	1	9	17	27	46·5												
	1912	63	1	5	23	29	36·5												
	1913	111	5	17	36	58	52·2												
	1914	199	3	20	64	87	43·7							82	2	43	31	76	92·7
	1915	79	..	1	31	32	40·5							117	8	40	52	100	85·5
	1916	136	..	10	25	35	25·7							105	12	36	41	89	84·8
	1917	166	.	4	48	52	31·3							158	10	42	71	123	77·8
	1918	116	..	7	30	37	31·9							110	6	29	55	90	81·8
	1900	20	1	5	9	15	75·0												
	1901	31	..	4	8	12	38·7												
Bombay	1902	48	2	8	9	19	39·5	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
	1903	40	2	1	23	26	65·0												
	1904	45	1	7	16	24	53·3												

(a) No examination.

TABLE 2—*continued.*

Results of different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

UNIVERSITY.		MASTER OF ARTS						MASTER OF SCIENCE.						BACHELOR OF ARTS (HONOURS).					
		Number of candidates	NUMBER OF PASSES			TOTAL	Percentage of total passes	Number of candidates	NUMBER OF PASSES			TOTAL	Percentage of total passes	Number of candidates	NUMBER OF PASSES			TOTAL	Percentage of total passes
			Class I	Class II	Class III				Class I	Class II	Class III				Class I	Class II	Class III		
Bombay—*contd*	1905	45	1	10	18	29	64 4												
	1906	59	1	11	26	38	64 4												
	1907	58	2	8	19	29	50 0												
	1908	69	6	13	19	38	55 0												
	1909	86	1	22	28	51	[illegible]	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
	1910	72		15	30	45	[illegible]												
	1911	112		29	29	61	44												
	1912	78	3	22	2	0	61												
	1913	80		11	32	43	[illegible]												
	1914	114	1	17	42	60	[illegible]	1						154	9	48	59	116	75 3
	1915	110	1	17	20	48	43 6	1						52		7	20	27	51 9
	1916	173	2	22	54	78	44 4	4	1		[illegible]	3	75 0	224	15	124	44	183	81 2
	1917	106		13	46	59	5 6	2	2			2	100 0	341	16	158	89	263	77 1
	1918	47	1	4	16	21	44 7	1	1		1	2	100 0	393	11	164	129	304	77·3
	1900	31	2	10	11	23	74												
	1901	26	2	2	15	19	73												
	1902	31	1	3	11	15	48												

SHIRRAS, G. FINDLAY—*contd*

Allahabad	1903	87	1	3	8	12	32	(a)	(a)	(a)	(a)	(a)	(a)						
	1904	36	..	3	13	16	50												
	1905	16	..	1	8	9	56												
	1906	27	..	1	7	8	30												
	1907	39	1	5	13	19	47												
	1908	34	.	5	12	17	47	5	..	1	2	3	60						
	1909	24	..	6	7	13	54	3	1			1	33	(a)	(a)	(a)	(a)	(a)	(a)
	1910	23	.	3	13	16	69	5	2	3		5	100						
	1911	31	2	5	16	23	74	4		3	1	4	100						
	1912	43	1	6	17	24	56	10	2	4	2	8	88						
	1913	50	4	11	19	34	68	17	[illegible]	4	7	16	94						
	1914	61	2	12	32	46	76	11	4	1	4	9	81						
	1915	70	3	13	35	51	73	23	2	3	8	13	[illegible]						
	1916	97	1	13	44	58	60	25	1	7	6	14	56						
	1917	117	.	20	62	82	73	25	1	8	13	22	88						
	1918	116	4	17	61	82	75	28	1	7	9	17	60						
Punjab	1900	22		2	5	7	31 8												
	1901	23		1	10	11	47 8												
	1902	35		2	21	23	65 7												
	1903	37		2	12	14	37 8												
	1904	41	1	4	13	18	43 9	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
	1905	44	.	2	19	21	45 4												
	1906	51	.	2	12	14	27 4												
	1907	51	.	4	14	18	35 7												
	1908	43	1	5	15	21	48 8	4	1	.	2	3	75						
	1909	35	1	5	10	16	45 7	7	1	2	3	6	85 7	55	..	..	[illegible]	24	43·8

(a) No examination.

TABLE 2—*continued.*

Results of different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

UNIVERSITY.		MASTER OF ARTS.						MASTER OF SCIENCE.						BACHELOR OF ARTS (HONOURS).					
		Number of candidates.	NUMBER OF PASSES.				Percentage of total passes	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.
			Class I.	Class II.	Class III	TOTAL			Class I.	Class II.	Class III.	TOTAL			Class I.	Class II.	Class III.	TOTAL.	
Punjab—*contd.*	1910	40	.	4	14	18	45 0	9	1	1	3	5	55 5	78	.	..	..	30	38 4
	1911	42	1	4	12	17	40 4	7		1	4	5	71 4	90	..	.	.	33	36 6
	1912	52	1	3	24	28	54 8	5		3	2	5	100	82	..	.	..	32	39 0
	1913	62	2	5	24	31	50 0	7	1	1	3	5	71 4	80		.	..	42	52 5
	1914	58		15	16	31	53 4	9		4	3	7	77 7	112	.	.	..	45	40 1
	1915	78	4	14	27	45	57 6	10	3	3	3	9	90	157		.	..	47	29 9
	1916	77	3	25	31	59	76 6	16	8	3	2	13	81 2	149	.	..	..	63	42 2
	1917	94	4	16	31	51	54 2	18	2	9	3	14	77 7	149	.	..	..	62	41·6
	1918	108	5	13	43	61	56 4	18	1	7	5	13	72 2	84	..	.	..	70	83 3
Patna . .	1918	10	..	4	2	6	60 0				.	.		17	1	6	2	9	52 9
Benares 1918	Previous	4	..	1	2	3	75 0	4	1	1	1	3	75·0	..	..	..	..	..	..
	Final	1	..	1	..	1	100 0	2	1	.	1	2	100 0	..	..	..	..	..	..
Mysore. .	1918	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TOTAL	1900	329	10	51	95	156	47·4	..	..	..	..	..	..	270	8	70	71	149	55·2
	1901	306	10	46	81	137	44·8	..	..	..	..	..	..	305	4	64	47	115	37·7
	1902	329	10	39	86	135	41·0	..	..	..	..	..	..	273	6	100	48	154	56·4
	1903	352	8	43	87	138	39 2	..	..	..	.	..	..	288	8	55	51	114	39·6
	1904	354	7	35	81	123	34·7	..	..	..	.	..	..	308	10	57	58	125	40·6
	1905	318	11	43	81	135	42 5	..	..	..	..	..	..	302	2	61	55	118	39·1
	1906	406	11	58	102	171	42 1	..	..	..	.	..	..	241	4	75	41	120	49·7
	1907	465	19	63	94	176	37 8	..	.	.	.	..	.	270	11	83	35	129	47·7
	1908	531	25	97	141	263	49 5	9	1	1	4	6	66 6	290	7	118	62	187	64 5
	1909	224	4	38	66	108	48 2	10	2	2	3	7	70 0	124	7	35	12	78	62·9
	1910	275	8	58	87	153	55 6	28	5	10	6	21	75 0	187	11	52	27	120	64·2
	1911	447	16	101	147	264	59 1	46	9	13	6	30	65 2	267	13	93	41	180	67·4
	1912	512	21	107	168	296	57 8	71	11	19	18	48	67 6	328	19	149	24	224	68·3
	1913	709	23	151	211	385	54 3	105	19	29	20	68	64 8	442	10	194	66	312	70·6
	1914	955	40	220	281	541	56 6	115	20	32	19	71	61·7	737	20	244	188	497	67·4
	1915	928	31	123	274	428	46 1	161	26	22	31	79	49 1	675	19	211	139	416	61·6
	1916	1,138	31	177	331	539	47·4	210	42	45	31	118	56·2	858	61	334	187	645	75·2
	1917	1,225	36	202	391	629	51·3	196	38	49	32	119	60·7	1,079	62	434	229	787	72·9
	1918	1,122	58	177	374	609	54 3	237	44	60	29	133	56·1	1,077	57	375	284	786	73·0

NOTE.—(1) There are no classes in Bachelor of Arts (honours) examination in the Punjab.
(2) Candidates from Native States and Ceylon are excluded from these tables.

TABLE 2—*continued.*

Results of the different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

BACHELOR OF ARTS (PASS)

University.	Year	Number of candidates	Number of passes: Class I	Class II	Class III	Total	Percentage of total passes
	1900	1,580			[illegible]	352	22 [illegible]
	1901	1,606			240	240	14 9
	1902	1,806			320	[illegible]20	17 7
	1903	1,676			283	283	17 2
	1904	1,813			184	184	10 1
	1905	1,797			369	369	20 [illegible]
	1906*	1 706			[illegible]8	[illegible]8	20 9
	1907	1,572			294	294	18 7
	1908	2 609			909	909	[illegible]4 8
Calcutta	1909	426		25	174	199	46 7
	1910	783		20	[illegible]16	3[illegible]	[illegible]2 9
	1911	845		51	423	474	[illegible] 1
	1912	998		29	[illegible]21	[illegible]	[illegible] 1
	1913	1,564		86	845	931	59 [illegible]
	1914	2,189		47	972	1 019	46 [illegible]
	1915	2,620		105	1,063	1,168	44 [illegible]
	1916	2,896		155	1 232	1,387	47 8

BACHELOR OF SCIENCE (HONOURS)

Year	Number of candidates	Number of passes: Class I.	Class II	Class III	Total	Percentage of total passes
1900	(a)	(a)	(a)	(a)	(a)	(a)
1901						
1902	8		1		1	12 5
1903	8		1	4	5	62 5
1904	1					
1905	6	1	1	1	3	50 0
1906*	9		5	2	7	77 7
1907	9	1	3	2	6	66 [illegible]
1908	21	2	12	6	20	9[illegible] 2
1909	47	3	1[illegible]	6	24	51 1
1910	[illegible]	3	1[illegible]	19	[illegible]	[illegible] 8
1911	7[illegible]	9	32	19	[illegible]0	78 9
1912	9[illegible]	5	2[illegible]	31	[illegible]2	6[illegible] 2
1913	118	13	44	[illegible]3	90	76 2
1914	129	9	50	33	92	71 3
1915	141	17	43	36	96	68 1
1916	131	28	54	24	106	80 9

BACHELOR OF SCIENCE (PASS)

Year	Number of candidates	Number of passes: Class I.	Class II.	Class III.	Total	Percentage of total passes
1900	(a)	(a)	(a)	(a)	(a)	(a)
1901						
1902	4			1	1	25 0
1903	11			3	3	27 2
1904	13			5	5	38 4
1905	9					..
1906*	9			5	5	55 5
1907	8			3	3	37 5
1908	17			8	8	47 0
1909	64		6	15	21	32 8
1910	121		16	24	40	33 0
1911	1[illegible]8		18	61	79	50·0
1912	189		27	79	106	56 1
1913	288		56	120	176	61·1
1914	296		31	108	139	46·9
1915	352		33	112	145	41·1
1916	397		140	120	260	65·4

SHIRRAS, G. FINDLAY—*contd.*

	1917	3,338		160	1,367	1 527	45 7	131	24	45	23	92	70 2	356	..	103	109	212	59·5
	1918	3,066		130	1,232	1 362	44 4	125	19	39	28	86	68 8	359	.	101	115	216	60 1
	1900					375													
	1901					338													
	1902					449													
	1903					484													
	1904					510													
	1905					508													
	1906					407													
	1907					548													
	1908					[illegible]													
Madras (*b*) .	1909					470		(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)
	1910					600													
	1911					674													
	1912					862													
	1913					686													
	1914					653													
	1915					634													
	1916					727													
	1917					612													
	1918					767													
	1900	277	6	50	116	172	60 0							6		3	1	4	66 6
Bombay	1901	384	5	67	166	238	61 9							4		2	-	4	100·0
	1902	349	3	32	125	160	45 9							7	1	2	3	6	85·7

(*a*) No examination

(*b*) The figures in the "total" column relate to the total number of candidates who qualified for the degree by passing separately one or more divisions or parts of the B A degree examination in each year Figures relating to the number of candidates examined and passed in each division of part and the number of classes gained will be found in Table 8.

TABLE 2—*continued.*

Results of the different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

UNIVERSITY.		BACHELOR OF ARTS (PASS).						BACHELOR OF SCIENCE (HONOURS).						BACHELOR OF SCIENCE (PASS).					
		Number of candidates.	NUMBER OF PASSES.				Percentage of total passes	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.
			Class I.	Class II.	Class III.	TOTAL.			Class I.	Class II.	Class III.	TOTAL.			Class I.	Class II.	Class III.	TOTAL.	
Bombay—*contd.*	1903	413	7	85	220	312	77·9							3	..	..	2	2	66·6
	1904	353	3	65	169	237	67·1							7	..	5	1	6	85·7
	1905	323	4	55	175	234	72·1							6	..	2	3	5	83·0
	1906	388	2	88	182	272	70 1							9	1	..	7	8	88 8
	1907	398	5	56	182	243	61 0							12	..	8	..	8	66·6
	1908	433	11	96	183	290	66 9							15	..	..	13	13	86·6
	1909	427	6	82	206	294	68 8							16	.	6	7	13	81·2
	1910	432	1	71	169	241	55 7							29	..	6	9	15	51·7
	1911	525	7	115	271	393	74 8	(a)	(a)	(a)	(a)	(a)	(a)	22	..	9	9	18	81·8
	1912	526	5	87	250	342	65 0							30	..	7	12	19	63 3
	1913	632	6	82	292	380	60 1							32	1	3	18	22	68·7
	1914	513	1	1	260	262	51 0							29	2	5	14	21	72·4
	1915	256	..	..	90	90	35 2							21	..	3	7	10	47·6
	1916	515	..	..	270	270	52·4							53	2	11	21	34	64·1
	1917	660	..	..	314	314	47 6							70	7	15	13	35	50·0
	1918	732	..	..	353	353	48 2							69	6	23	20	49	71·0
	1900	233	4	82	35	121	52							9	2	3	1	6	67
	1901	283	5	123	34	162	60							5	..	2	1	3	66

SHIRRAS, G. FINDLAY—*contd.*

	1902	227	5	109	41	155	69							5	1	2	..	3	60
	1903	203	..	32	100	132	65							12	..	3	5	8	67
	1904	266	2	55	116	173	68							18	..	6	7	13	72
	1905	283	6	71	93	170	60							23	1	7	3	11	48
	1906	404	3	66	197	266	66							26	1	5	7	13	50
	1907	381	1	31	117	149	39							43	1	7	8	16	37
	1908	414	2	62	141	205	49							81	4	11	17	32	40
Allahabad	1909	471	2	72	123	197	42	(a)	(a)	(a)	(a)	(a)	(a)	124	1	15	20	36	30
	1910	603	..	51	163	214	36							144	2	19	32	53	38
	1911	691	4	118	211	333	49							150	1	34	54	89	62
	1912	804	4	115	213	332	42							123	.	14	37	51	42
	1913	806	2	74	232	308	40							153	8	33	26	67	45
	1914	846	1	81	292	374	44							152	6	33	28	67	44
	1915	924	1	86	227	314	34							145	4	20	50	74	52
	1916	1 100	1	88	377	466	43							160	5	45	35	85	55
	1917	1,165	4	97	396	497	43							176	2	29	39	70	42
	1918	1,162	2	75	298	375	33							190	3	35	33	71	39
	1900	378	1	79	33	113	30 7							(a)	(a)	(a)	(a)	(a)	(a)
	1901	365	6	82	37	125	34 2												
	1902	324	3	102	31	136	41·9							2	..	2	..	2	100
	1903	304	12	76	33	121	39 8							3	1	1	..	2	66·6
Punjab	1904	295	10	100	17	127	42 9	(a)	(a)	(a)	(a)	(a)	(a)	5	2	1	..	3	60
	1905	307	3	110	39	152	49 5							5	..	4	..	4	80
	1906	321	13	79	24	116	36·1							6	1	2	..	3	50
	1907	326	1	81	13	95	29·1							13	..	3	..	3	23·1
	1908	316	5	64	46	115	36·3							18	1	4	..	5	27·7

(a) No examination.

SHIRRAS, G FINDLAY—*contd.*

TABLE 2—*continued.*

Results of different examinations of Indian universities held in the nineteen years 1900 to 1918— continued.

University	Year	BACHELOR OF ARTS (PASS)						BACHELOR OF SCIENCE (HONOURS)						BACHELOR OF SCIENCE (PASS)					
		Number of candidates	Number of passes: Class I	Class II	Class III	TOTAL	Per cent of total passes	Number of candidates	Number of passes: Class I	Class II	Class III	TOTAL	Per cent of total passes	Number of candidates	Number of passes: Class I	Class II	Class III	TOTAL	Percentage of total passes
Punjab—*contd*	1900	353	9	82	57	148	41 9	4				3	75	15		3		3	20
	1910	388	10	78	63	151	38 9	5		.		3	60	18	.	5	1	6	33 3
	1911	473	12	66	41	[illegible]	[illegible]	18	.			10	55 5	24	1	15	3	17	70 8
	1912	467	5	89	77	171	36 6	11	..			5	45 4	25	2	8	2	12	48
	1913	462	8	109	86	203	43 9	25				14	56	61		23	10	33	54·1
	1914	574	6	141	108	255	44 6	12				7	58 3	43	3	12	2	17	39 5
	1915	785	7	160	154	321	40 8	22				10	45 4	46		22	3	25	54 3
	1916	951	18	181	190	389	40 9	25				15	60	57		31	10	42	73 6
	1917	1 119	14	281	[illegible]	518	46 [illegible]	24				10	41 6	45	1	15	5	21	46 6
	1918	1 184	12	317	337	666	56 2	18				14	77 7	68		31	9	40	58·8
Patna .	. 1918	445			186	186	41 8	10	1	5	–	8	80	24			14	14	58 3
Benares	. 1918	89	1	4	25	30	34							18		3	3	6	33
Mysore .	. 1918	76	1	39	.	40	52 6	..	..	.				.	..	.	..	..	..

	1900	2,468	11	211	536	758	30·7	..	..	..	..	..	..	15	2	6	2	10	66·7
	1901	2,638	16	272	477	765	29·0	..	..	..	..	..	..	9	..	4	3	7	77·8
	1902	2,706	11	243	517	771	28·5	8	..	1	..	1	12·5	18	2	6	4	12	66·7
	1903	2,556	19	193	636	848	33·2	8	..	1	4	5	62·5	29	1	4	10	15	51·7
	1904	2,727	15	220	486	721	26·4	1	..	..	..	..	..	43	2	12	13	27	62·8
	1905	2,710	13	236	676	925	34·1	6	1	1	1	3	50·0	43	1	13	6	20	46·5
	1906	2,819	18	233	761	1,012	35·9	9	..	5	2	7	77·7	50	3	7	19	29	58·0
	1907	2,677	7	168	606	781	29·2	9	1	3	2	6	66·6	76	1	18	11	30	39·5
	1908	3,772	18	222	1,279	1,519	40·3	21	2	12	6	20	95·2	131	5	15	38	58	44·3
AL (*b*)	1909	1,677	17	261	560	838	50·0	51	3	15	6	27	52·1	219	1	30	42	73	33·3
	1910	2,206	11	220	711	942	42·7	70	3	13	19	38	54·3	312	2	46	66	114	36·5
	1911	2,534	23	350	976	1,349	53·2	94	9	32	19	70	74·5	354	2	74	127	203	57·3
	1912	2,795	14	320	1,061	1,395	49·9	106	5	26	31	67	63·2	367	2	56	130	188	51·2
	1913	3,464	16	351	1,455	1,822	52·6	143	13	41	33	104	72·7	534	9	115	174	298	55·8
	1914	4,122	8	270	1,632	1,910	46·3	111	9	50	33	99	70·2	520	11	81	152	244	46·9
	1915	4,585	8	351	1,534	1,893	41·3	164	17	43	36	106	64·6	564	4	78	172	254	45·0
	1916	5,462	19	424	2,069	2,512	46·0	156	28	54	24	121	77·6	667	8	227	186	421	63·1
	1917	6,282	18	538	2,300	2,856	45·5	155	24	45	23	102	65·8	647	10	162	166	338	52·2
	1918	6,754	16	645	2,351	3,012	44·6	153	20	44	30	108	70·6	728	9	193	194	396	54·3

SHIRRAS, G. FINDLAY—*contd.*

NOTE.—(1) There are no classes in Bachelor of Science (honours) examination in the Punjab.
(2) Candidates from Native States and Ceylon are excluded from these tables.
(*a*) No examination.
(*b*) Totals for B. A. (pass) exclude Madras for all the columns.

TABLE 2—*continued.*

Results of the different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

University.		INTERMEDIATE EXAMINATION IN ARTS.					INTERMEDIATE EXAMINATION IN SCIENCE.						MATRICULATION.					
		Number of candidates.	Number of passes.			Percentage of total passes.	Number of candidates.	Number of passes.			Percentage of total passes.		Number of candidates.	Number of passes.			Percentage of total passes.	
			Class I.	Class II.	Class III.	Total.		Class I.	Class II.	Class III.	Total.			Class I.	Class II.	Class III.	Total.	
Calcutta	1900	3,382	48	233	950	1,231	36·3						5,988	936	1,538	1,137	3,611	60·3
	1901	3,612	45	189	896	1,130	31·2						5,827	914	1,291	966	3,171	54·4
	1902	4,001	127	363	983	1,473	36·8						6,713	592	1,234	1,473	3,299	49·1
	1903	3,883	97	361	780	1,238	31·8						6,780	581	1,183	1,331	3,095	45·6
	1904	3,832	64	342	890	1,296	33·8	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	7,118	407	912	1,376	2,695	37·8
	1905	3,521	79	364	676	1,119	31·7							6,972	387	1,018	1,502	2,907	41·6
	1906	2,885	83	294	658	1,035	35·8							6,952	163	555	1,115	1,833	26·3
	1907	2,733	132	444	492	1,068	39·1							5,804	532	1,758	1,050	3,340	57·5
	1908	3,583	98	676	709	1,483	41·4							6,416	480	1,792	1,678	3,950	61·5
	1909	1,336	128	268	54	450	33·6	323	79	54	6	139	43·0	12,395	1,932	4,428	1,402	7,762	62·6
	1910	2,194	231	572	78	881	40·1	672	120	182	17	319	47·4	3,545	1,870	813	110	2,793	78·7
	1911	3,334	478	994	195	1,667	50·0	1,005	207	298	50	555	55·2	6,074	2,464	1,590	211	4,265	70·2
	1912	4,048	464	1,190	309	1,963	48·4	1,097	201	299	43	543	49·4	8,761	2,862	2,361	394	5,617	64·1
	1913	4,360	480	1,151	476	2,107	48·3	1,057	336	326	52	714	67·5	9,370	4,436	2,196	230	6,862	73·2
	1914	5,151	521	1,201	438	2,160	41·9	953	341	214	29	584	61·2	11,289	2,949	3,149	657	6,755	59·8
	1915	5,798	923	1,598	370	2,891	49·8	1,026	473	124	6	603	58·7	12,457	3,653	3,279	554	7,486	60·1
	1916	5,891	721	1,456	498	2,685	45·5	1,298	403	247	33	683	52·6	14,058	4,326	3,342	494	8,162	58·0

	1917	6,467	994	1,569	325	2,888	44·6	1,553	525	290	20	835	53·7	15,876	5,790	4,699	642	11,131	70·1
	1918	5,500	829	1,613	531	2,973	54 0	1,485	522	361	34	917	61·7	14.490	4,995	3,155	400	8,550	59·0
	1900	2,089	53	815	..	868	41·6							7,313	27	1,396	..	1,423	19·5
	1901	1,892	58	672	..	730	38·6							7.658	71	2,356	..	2,427	31·7
	1902	1,878	47	657	..	704	37·5							7,913	19	2,490	..	2,509	31·7
	1903	2,333	59	1,008	..	1,067	45·7							8,114	15	1,506	..	1,521	18·7
	1904	2,430	62	918	..	980	40·3							8,804	15	2,470	..	2,485	28·2
	1905	2,236	29	651	..	680	30·4							8,998	9	2.154	..	2,163	24·0
	1906	2,448	24	747	..	771	31·5							8,852	24	3,054	..	3,078	34·8
	1907	2,479	75	1,012	..	1,087	43·8							8,788	6	1,522	..	1,528	17·4
	1908	2,687	56	1,013	..	1,039	39·8							10,767	30	2,504	..	2,534	23·6
Madras	1909	2,610	57	793	..	859	32·6	(a)	(a)	(a)	(a)	(a)	(a)	7,381	16	220	1,137	1,373	18·6
	1910	(a)	(a)	(a)	(a)	(a)	(a)							..	..	..	..	..	..
	1911	1,427	161	431	..	592	41·4							782	8	55	101	164	21 0
	1912	1,575	133	553	..	686	43·5							580	2	32	103	137	23·5
	1913	2,427	205	607	..	812	33·4							149	5	16	25	46	30·8
	1914	2,969	275	884	..	1,159	39·0							82	..	6	20	26	31·7
	1915	3,749	164	866	..	1.030	27·5							28	..	7	10	17	60·7
	1916	4,717	154	1,087	..	1,141	26 3							52	2	6	9	17	32·7
	1917	5,424	108	1,327	..	1,435	26·5							80	..	7	14	21	26·3
	1918	5,803	111	1.535	..	1,646	28·4							16	..	3	3	6	37 5
	1900	409	2	56	190	248	61·1	14	..	2	6	8	57·1	2,998	..	..	..	959	31·9
	1901	444	3	63	196	262	59·2	10	..	..	3	3	30·0	3,166	..	..	..	960	30·3
Bombay	1902	431	1	62	197	260	60 3	9	..	..	3	3	33·3	3,225	..	..	..	1,084	33·6
	1903	344	2	59	150	211	61·2	15	..	..	9	9	60·0	3,116	..	..	..	1,110	35·6

NOTE.—(1) There are no classes at the matriculation examination in Bombay and Mysore.
(2) There are no classes at the first year certificate examination (Intermediate examination in Arts) in Mysore.
(a) No examination.

TABLE 2—*continued.*

Results of the different examinations of Indian universities held in the nineteen years 1900 to 1918—continued.

UNIVERSITY.		INTERMEDIATE EXAMINATION IN ARTS.						INTERMEDIATE EXAMINATION IN SCIENCE.						MATRICULATION.					
		Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes.
			Class I.	Class II.	Class III.	TOTAL.			Class I.	Class II.	Class III.	TOTAL.			Class I.	Class II.	Class III.	TOTAL.	
Bombay—*contd.*	1904	450	1	75	234	310	68 8	7	.	2	5	7	100 0	3,297	..	..	..	1,198	36·3
	1905	531	2	65	262	329	61 9	15	.	2	4	6	40 0	3,684	..	..	..	1,279	34·7
	1906	543	2	65	270	337	62 0	33		1	13	14	42 4	3 459	..	..	..	1,533	44 3
	1907	548	13	83	231	327	59 6	27	..	1	15	16	59 2	1,948	.	..	..	871	44·7
	1908	540	3	75	255	333	61 6	28			11	11	39 2	2 364	..	..	..	922	39 0
	1909	604	2	64	302	368	60 9	39		1	31	32	82 0	2,649	.		.	1,277	48 2
	1910	600	3	69	364	436	72 6	29	.	1	13	14	48 2	2,969	..		.	1,236	41 6
	1911	673	9	120	356	485	72 0	40		.	27	27	67 5	3,261	..	..	..	1,605	49 2
	1912	666	10	108	322	440	67 5	53		8	23	31	58 4	3 408	.	.	..	1.164	34 1
	1913	807	8	127	414	549	68 0	93	5	10	38	53	56 9	3,849	..	..	.	2,203	57 2
	1914	883	4	116	504	624	70 6	106	2	25	34	61	57 5	4,079	..	..	..	1,236	30 3
	1915	356	1	5	151	157	41 2	50	4	10	8	22	44 0	3,316	..	..	..	757	22 8
	1916	1,178	4	144	591	739	62 7	110	6	19	26	51	46 3	3,535	..	..	..	1,720	48·6
	1917	1,124	15	148	570	733	65 2	157	8	31	34	73	46 5	3,941	..	..	..	1,370	34·7
	1918	1,185	7	140	488	635	53 6	176	1	33	45	79	44 9	4,094	..	..	..	2,206	53·9
	1900	316	1	18	71	90	28							1,748	112	312	212	636	36
	1901	568	4	46	159	209	37							1,967	83	342	332	757	33

	1902	575	6	94	199	299	52							1,77	116	469	292	877	49
	1903	589	8	116	109	233	39							1,688	107	385	355	847	50
	1904	622	14	139	236	389	63							1,755	128	443	361	932	53
	1905	649	7	80	203	290	47							2,263	261	699	439	1,399	62
	1906	680	10	101	204	315	46							2,229	139	374	381	894	40
	1907	974	4	95	284	383	40							3,181	448	1,062	495	2,005	63
	1908	1,123	12	193	334	539	48							2,515	32	474	572	1,078	43
Allahabad	1909	1,345	16	160	321	497	37	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	2,825	18	302	577	897	32
	1910	1,394	16	166	405	587	42							3,147	12	336	510	858	28
	1911	1,260	13	195	419	627	50							2,981	24	550	650	1,224	42
	1912	1,275	10	157	381	548	43							2,890	16	423	573	1,012	36
	1913	1,550	22	217	440	679	44							3,123	20	393	741	1,154	37
	1914	1,672	23	208	506	737	45							3,163	21	488	842	1,351	42
	1915	1,904	5	198	656	859	45							3,604	11	414	852	1,977	36
	1916	1,935	22	231	615	868	40							3,960	6	282	755	1,043	27
	1917	2,256	24	309	611	944	42							4,363	10	425	728	1,163	27
	1918	2,062	19	317	663	999	49							4,107	3	245	601	849	22
	1900	605	22	123	131	276	45·6	15	..	4	..	4	26·6	2,540	235	632	367	1,234	48·5
	1901	535	23	115	94	232	43·3	19	1	8	..	9	47·3	2,553	256	772	305	1,333	52·2
	1902	570	25	162	134	321	56·3	10	2	4	..	6	60	2,700	159	668	342	1,169	43·2
	1903	547	27	113	105	245	46·7	10	1	2	1	4	40	2,884	241	825	383	1,449	50·2
Punjab	1904	536	29	106	98	233	43·4	28	.	9	5	14	50	2,860	227	767	326	1,320	46·8
	1905	591	16	115	122	253	42·8	24	2	9	1	12	50	3,055	190	777	372	1,339	43·8
	1906	611	18	160	117	295	48·2	31	2	11	1	14	45·1	3,206	169	738	432	1,339	41·7
	1907	633	21	152	121	294	46·4	37	1	12	1	14	37·8	3,324	227	893	470	1,590	47·2
	1908	638	40	189	48	277	48·4	40	3	15	..	18	45	3,167	206	779	373	1,358	42·8

(*a*) No examination.

TABLE 2—*concluded.*

Results of the different examinations of Indian universities held in the nineteen years 1900 to 1918—concluded.

UNIVERSITY.		INTERMEDIATE EXAMINATION IN ARTS.						INTERMEDIATE EXAMINATION IN SCIENCE.						MATRICULATION.					
		Number of candidates	NUMBER OF PASSES				Percentage of total passes	Number of candidates.	NUMBER OF PASSES.				Percentage of total passes	Number of candidates	NUMBER OF PASSES.				Percentage of total passes.
			Class I.	Class II.	Class III.	TOTAL.			Class I	Class II.	Class III	TOTAL			Class I.	Class II.	Class III.	TOTAL.	
Punjab—*contd.*	1909	632	46	241	101	388	61 3	117	5	26	22	53	45 2	3,055	159	788	395	1,342	43 9
	1910	565	18	145	55	218	38 5	157	3	41	23	67	42 6	3,509	201	1,087	369	1,657	47 2
	1911	708	23	168	89	280	39 5	191	7	66	8	81	42 4	3 608	248	1,205	360	1,813	49 0
	1912	792	38	255	135	428	54 0	200	33	80	10	123	61 5	3,975	305	1 381	439	2,125	53 4
	1913	903	33	328	138	499	55 2	230	26	116	12	154	66 9	4,034	199	1,209	659	2,067	51·2
	1914	947	46	348	122	516	54 4	295	21	134	9	164	55 6	4,620	340	1,564	673	2,577	55·7
	1915	1,076	42	397	148	587	54 5	356	30	146	13	189	53 1	4,748	317	1,675	715	2,707	57·0
	1916	1,115	47	403	160	610	54 7	400	26	169	8	203	50 7	5 569	275	1,959	829	3,063	55·0
	1917	1,045	56	339	171	566	54 1	485	34	191	21	246	50·7	5, 84	456	2 567	886	3,909	66·4
	1918	1,127	55	438	235	728	64 5	583	19	156	76	251	43 0	6,020	400	2,211	934	3,545	58·8
Patna	1918	830	107	224	90	421	50 7	156	49	43	17	109	69 9	3 629	640	637	389	1,666	45·9
Benares	1918	91	..	24	39	63	69	55	3	13	17	33	60	45	..	7	2	9	20
Mysore	1917	..	..	..	..	..	..	..	..	..	..	..	..	244	..	..	..	120	49·1
	1918	30	..	..	..	11	36·6	..	..	..	..	..	..	403	..	..	..	138	34·2

TOTAL	1900	5,801	126	1,245	1,342	2,713	39·9	29	..	6	0	12	41·4	20,587	1,310	3,878	1,716	7,863	38·2
	1901	7,051	133	1,085	1,345	2,563	36·3	29	1	8	3	12	41·4	21,171	1,324	4,761	1,603	8,648	40·8
	1902	7,455	206	1,338	1,513	3,057	41·0	19	2	4	3	9	47·4	22,323	886	4,861	2,107	8,938	40·0
	1903	7,696	193	1,657	1,144	2,994	38·9	25	1	2	10	13	52·0	22,582	944	3,899	2,069	8,022	35·5
	1904	7,870	170	1,580	1,458	3,208	40·8	35	..	11	10	21	60 0	23,834	777	4,592	2,063	8,630	36·2
	1905	7,528	133	1,275	1,263	2,671	35·5	39	2	11	5	18	46·2	24,972	847	4,648	2,313	9,087	36·4
	1906	7,167	137	1,367	1,219	2,753	38·4	64	2	12	14	28	43·7	24,698	495	4,721	1,928	8,677	35·1
	1907	7,367	245	1,786	1,128	3,159	42·9	64	1	13	16	30	46 9	23,045	1,213	5,235	2,015	9,334	40·5
	1908	8,571	209	2,146	1,346	3,701	43 2	68	3	15	11	29	42·6	25,229	748	5,540	2,623	9,842	39·0
	1909	6,527	249	1,526	778	2,553	39 1	479	84	81	59	224	46 8	28,305	2,125	5,738	3,511	12,651	44·7
	1910	4,753	268	952	902	2,122	44·6	858	123	224	53	400	46 6	13,170	2,083	2,236	989	6,544	49·7
	1911	7,402	684	1,908	1,059	3,651	49·3	1,236	214	364	85	663	53·6	16,706	2,744	3,400	1,325	9,071	54·0
	1912	8,356	655	2,263	1,147	4,065	48·6	1,350	234	387	76	697	51·6	19,614	3,185	4,197	1,509	10,055	51·3
	1913	10,047	748	2,430	1,468	4,646	46·2	1,380	367	452	102	921	66 7	20,525	4,660	3,814	1,655	12,332	60·1
	1914	11,622	869	2,757	1,570	5,196	44 7	1,354	364	373	72	809	59·7	28,233	3,310	5,207	2,192	11,945	51·4
	1915	12,883	1,135	3,064	1,325	5,524	42·9	1,432	507	280	27	814	56·8	24,153	3,981	5,375	2,131	12,244	50·7
	1916	14,836	948	3,331	1,864	6,043	40·7	1,808	435	435	67	937	51 8	27,174	4,609	5,589	2,087	14,005	51·5
	1917	16,316	1,197	3,692	1,677	6,566	40·2	2,195	567	512	75	1,154	52·6	30,388	6,256	7,698	2,270	17,714	58·3
	1918	16,628	1,128	4,291	2,046	7,476	45·0	2,455	594	606	189	1,389	56·6	32,804	6,038	6,258	2,329	16,969	51·7

NOTE.—Candidates from Native States and Ceylon are excluded from these tables.

SHIRRAS, G. FINDLAY—*contd.*

TABLE 3.

Results of the B. A. examination of the Madras University held in the nineteen years 1900 to 1918.

Nature of examination.	Year	Division or Part.	Number examined.	Number of Passes.			Total passed.	Percentage passed.
				Class I.	Class II	Class III.		
Bachelor of Arts (old).	1900	English Language	856	2	80	272	354	41·4
		Second Language	639	28	244	267	539	30·6
		Science Division	765	25	153	216	394	51·5
	1901	English Language	917	2	103	383	488	53·2
		Second Language	626	20	283	213	516	82·4
		Science Division	819	22	202	225	449	54·8
	1902	English Language	980	2	182	413	597	60·9
		Second Language	749	24	319	277	620	82·8
		Science Division	915	16	192	262	470	51·4
	1903	English Language	926	10	198	372	580	62·6
		Second Language	720	19	236	324	579	80·4
		Science Division	972	28	267	240	535	55·0
	1904	English Language	880	5	133	372	510	58·0
		Second Language	700	21	251	281	553	79·0
		Science Division	955	14	224	285	523	54·8
	1905	English Language	1,069	2	78	332	412	38·5
		Second Language	946	14	244	457	715	75·6
		Science Division	1,130	18	186	360	564	49·9
	1906	English Language	1,332	2	165	474	641	48 1
		Second Language	980	17	308	469	794	81·0
		Science Division	1,189	20	216	343	579	48·7
	1907	English Language	1,109	11	107	370	488	44·0
		Second Language	698	16	264	308	588	84·2
		Science Division	1,061	24	214	312	550	51·7
	1908	English Language	1,145	1	98	334	433	37·8
		Second Language	692	11	211	333	555	80·2
		Science Division	1,006	34	229	302	565	56·2
	1909	English Language	1,465	8	193	554	755	51·5
		Second Language	972	22	377	420	819	84·3
		Science Division	1,189	20	235	385	640	54·6

TABLE 3—*continued.*

Results of the B. A. examination of the Madras University held in the nineteen years 1900 to 1918—continued.

Nature of examination.	Year.	Division or Part	Number examined	Number of passes.			Total passed	Percentage passed.
				Class I.	Class II.	Class III.		
Bachelor of Arts (old)—*contd.*	1911	English Language	1,423	4	113	509	626	44·0
		Second Language	1,005	19	409	453	881	87·7
		Science Division	1,301	31	344	435	810	62·3
	1912	English Language	1,640	15	232	678	925	56·4
		Second Language	945	23	366	389	778	82·3
		Science Division	1,287	33	375	382	790	61·4
B. A. (new regulations)	1913	Part I	410	11	268	..	279	68 0
		Part II	396	16	259	..	275	69 5
B A (old)	1913	English Language	877	.	38	286	324	36 9
		Second Language	259	10	127	93	230	88 8
		Science Division	629	5	94	210	309	49 1
B. A. (new regulations)	1914	Part I	592	10	362	..	372	62 8
		Part II	583	8	281	..	289	49 5
B. A. (old)	1914	English Language	629	..	35	273	308	48·8
		Second Language	59	..	22	23	45	76 3
		Science Division	625	2	43	185	230	36 8
B. A. (new regulations).	1915	Part I	796	4	473	..	477	59 9
		Part II	869	7	632	..	639	73 5
B. A (old)	1915	English Language	306	..	1	45	46	15 0
		Second Language	67	1	33	28	62	92·5
		Science Division	257	..	20	70	90	35 0
B. A. (new regulations).	1916	Part I	1,180	3	545	..	548	46·4
		Part II	1,064	19	657	..	676	63·5
B. A. (old)	1916	English Language	257	..	18	132	150	58 4
		Second Language	17	..	7	6	13	76·5
		Science Division	274	..	24	96	120	43·8
	1917	Part I	1 1·4	..	449	..	449	38 6
		Part II	1 047	17	734	.	7·1	71 6
	1918	Part I	1,5·4	8	865	..	873	56 2
		Part II	1 134	3	·06	..	·09	44 9

NOTE.—(1) The B. A. degree examination under the new regulations was held for the first time in 1913.
(2) The B.A. degree examination under the old by-laws was held for the last time in 1916.
(3) No examination in 1916

TABLE 4.

Number of under graduates of Indian universities in the twelve years 1907 to 1918.

University.		Arts	Medicine.	Engineering	Oriental languages and literature	Other faculties.	TOTAL.
Calcutta	1907	6,250	523	94	..	412	7,279
	1908	6,060	510	100	..	499	7,169
	1909	8,570	567	109	..	984	10,230
	1910	10,428	606	92	..	995	12,121
	1911	12,379	632	88	..	919	14,018
	1912	14,973	708	93	.	1,525	17,299
	1913	17,273	769	97	..	2,025	20,164
	1914	19 915	847	104	..	2 265	23,531
	1915	20 406	932	94	.	2 703	24,135
	1916	21 822	984	78		2,903	25,797
	1917	23 916	1 100	83		3 158	28,257
	1918	22 425	1 334	85		2 915	26 759
Madras	1907	5 314	175	..	..	.	5,489
	1908	5 053	205	..	..	..	5,258
	1909	5,515	226	.	..	..	5,741
	1910	4,743	253	.	.	..	4,996
	1911	5,609	244	.	..	.	5,853
	1912	6,694	254	12	.	..	6,960
	1913	7,920	258	23	.	..	8,201
	1914	9,248	234	26	.	..	9 508
	1915	10 008	272	25		.	10,305
	1916	9,625	259	30	.	..	9,914
	1917	8 145	261	116			8,522
	1918	8 108	289	98			8,495
Bombay	1907	2 466	679	143	..	87	3,375
	1908	2,352	560	155	..	72	3,139
	1909	2,425	526	143	..	104	3,198
	1910	2,723	558	148	..	104	3,533
	1911	2,959	564	102	..	88	3,713
	1912	3,305	531	148	..	102	4,086
	1913	3,499	538	166	..	104	4,307
	1914	4,057	623	166	..	283	5,129
	1915	3,475	648	197	..	151	4,471
	1916	4,702	644	189	..	105	5,840

TABLE 4—*continued.*

Number of under-graduates of Indian universities in the twelve years 1907 to 1918—continued.

University.		Arts.	Medicine.	Engineering.	Oriental languages and literature.	Other faculties.	TOTAL.
Bombay—*contd*	1917	4,426	885	146	..	642	6,099
	1918	4,983	1,063	148	..	431	6,625
Allahabad	1907	2,812	..	..	..	..	2,812
	1908	3,216	..	..	..	..	3,216
	1909	3,397	..	..	..	..	3,397
	1910	3,373	..	..	..	..	3,373
	1911	3,597	29	..	..	..	3,626
	1912	4,006	57	..	..	5	4,068
	1913	4,393	84	..	..	7	4,484
	1914	4,937	108	..	..	19	5,064
	1915	5,573	134	..	..	37	5,744
	1916	5,661	137	..	..	37	5,835
	1917	6,133	140	..	..	73	6,346
	1918	5,420	135	.	.	67	5,622
Punjab	1907	703	27	144	311	..	1,185
	1908	758	32	208	192	..	1,190
	1909	721	24	131	231	..	1,107
	1910	771	43	110	231	..	1,155
	1911	944	37	78	286	..	1,345
	1912	1,078	34	22	321	..	1,455
	1913	1,158	45	23	419	..	1,648
	1914	1 235	49	..	475	..	1,759
	1915	1,269	47	..	551	..	1,867
	1916	1,548	76	..	625	..	2,249
	1917	1,920	288	..	56	..	2,264
	1918	4,524	96	96	331	208	5,159
Patna	1918	3,170	..	..	..	20	3,190
Benares	1918	622	..	..	67	5	694
Mysore	1917	81	..	..	..	..	81
	1918	476	..	45	..	..	521

SHIRRAS, G. FINDLAY—*contd.*

TABLE 4—*concluded.*

Number of under graduates of Indian universities in the twelve years 1907 to 1918—concluded.

University.		Arts.	Medicine.	Engineering	Oriental languages and literature.	Other faculties	TOTAL.
TOTAL	1907	17,545	1,404	381	311	499	20,140
	1908	17,439	1,307	463	192	571	19,972
	1909	20,628	1,343	383	231	1,088	23,673
	1910	22,038	1,460	350	231	1,099	25,178
	1911	25,488	1,506	268	286	1,007	28,555
	1912	30,056	1,584	275	321	1,632	33,868
	1913	34,243	1,694	312	419	2,136	38,804
	1914	38,792	1,861	296	475	2,567	43,991
	1915	40,731	2,033	316	551	2,891	46,522
	1916	43,358	2,100	297	625	3,245	49,625
	1917	44,621	2,674	345	56	3,873	51,569
	1918	49,728	2,917	376	398	3,646	56,625

NOTE.—(1) The term "under-graduate" denotes one who has been admitted to a college, whose name is still on the rolls of a college, and who has not yet taken the degree. It does not include those who having passed one degree proceed to another.

(2) Candidates from Native States and Ceylon are excluded from these tables.

SARKAR, BEJOY KUMAR.

I should like to make the following further suggestions in connection with university education:—

(*a*) There ought to be compartmental examinations; and a student who fails in one subject ought to be examined again only in that subject and not in all the subjects.

(*b*) The University should take more practical steps to encourage the vernaculars with a view to making the teaching and examination through the vernaculars compulsory in all the subjects up to the highest standard in the immediate future. With this purpose, encouragement should be given for the translation of the standard works in the foreign languages into Bengali, and also the preparation of suitable text-books into Bengali.

True and sound education cannot spread except through the medium of one's own mother tongue; and all necessary steps should be taken to realise this end.

SINHA, KUMAR MANINDRA CHANDRA.

A great deal has been written on the system of education in India; and a great deal has still to be written. The system is undergoing a transformation; but the last word has not been said, nor has the finishing stroke been given. Alike with some of the other activities in India, the whole system suffers from immaturity. There has been no perfection gained, nor has a finality been arrived at. No one will deny that there has been progress, and in many instances, definite progress; but that the last stage has been reached and that the coping-stone has been placed none will admit. Being immature, the system has been subjected to experiment and even to venture, and where these factors come in one may rightly expect failures, and in some instances, crude and avoidable failures.

One of the experiments made on the system of education in India has been the attempt to graft on the young trunk the mature and sturdy branches of education as found in some of the best universities of England, like those of Oxford and Cambridge. The English universities have not been the work of a day; the people of England have not arrived at the present state of civilisation and refinement in a decade or two. Reforms have come about by the process of centuries of labour and by the patient foresight of individuals who have gone the way of all mortals long before their ideals were realised or their schemes bore fruit. Education in England may well then be styled a growth, a development, that has both influenced those for whom it has been engendered and in like manner has been influenced by those for whom it was established. Not so with Indian education. For ages, long before the British advent in India, education in India was mainly devoted to the memorising of the classics of the land; and those who indulged in these luxuries were the privileged few; the masses remained ignorant. Then came the pioneers of English education in India. Macaulay—that astute but wilfully prejudiced politician—arranged his series of educational reforms. The universities were formed and a system of English training was mapped out for the people of India, wholly unsuited to their needs and devoid of their interests. Whatever else he may be, the Indian is a born imitator; he learned lesson after lesson of this high training system, English essentially in its ideals, and the inevitable result was that he grew to be an imitation—an unworthy imitation at the best—of English ideals and manners. Then once more the "powers that be" felt that the training was unsuited to Indian ideals and to Indian needs; and once more under the able and determined leadership of Lord Curzon came the reforms in university education. Obsolete implements of culture were cast aside, much of the chaff of useless examinations was eliminated, and generally new methods were employed. The system was broadened up to a certain standard and has been attenuated above a certain standard. Here again, however, it will be recognised that though much has been done much still

SINHA, Kumar MANINDRA CHANDRA—*contd.*

remains to be done. To instance these statements some sort of investigation of the details must be undergone. There was no doubt that with the old system, beginning with an entrance examination, a great and growing opportunity was given for "cramming." Text-books were appointed for the study of English, of history, of geography, and other kindred subjects. The subtle Indian soon realised that all that was necessary was a careful memorising of the important portions of text-books, and in some cases, of the whole text-book; and students passed in schools who were nothing better than repeating automatons. To battle this evil the present matriculation examination was introduced. No text-books are set, a syllabus is framed for each subject, and a wide list of books is merely recommended. But has this finally solved the difficulty of training the growing minds of the young men of India? Books not being appointed for study, a general standard being only fixed, teaching in the matriculation class has deteriorated. In England the tutorial system obviates this difficulty. In India the young man being given a general standard, with little to study, neglects to study altogether. In most of the colleges, if not all, the professors are constantly grumbling that students are not fit to be received for the arts and science courses, although they have passed the matriculation examination. The result is that teaching in the first arts and science classes is becoming increasingly difficult and disappointing to professors. Pupils leave in the middle of the terms discouraged and, if they pursue the entire course and hazard the examination, they retire in most cases failures. A further investigation will go to show that the higher classes in the universities are suffering from the same defects and that in many cases graduates are unqualified for the degrees that they receive.

These reforms, therefore, much as they have been inaugurated with the highest ideals in view, for the welfare of the Indian, have failed because, as mentioned before, there has been the constant attempt to graft the mature system of English training on the immature Indian stock. Schemes have been formulated by those in touch with the youth of India, who have none the less failed to grasp the underlying principles on which the Indian character is based. The Indian possesses essentially a philosophic mind, highly subtle and filled with intellectual energy, but the physical counterpart is lacking and the inclination to act is wanting. A cursory study of the religions of the East, and their philosophies, will justify this statement. The mind of the Englishman, on the contrary, is materialistic. To him the idealistic, the philosophic, are mere conceptions, so long as they do not alter and improve the things around him to his advantage and comfort. To the Indian the situation is reversed. The world and its environments remain as they were, unlooked after and unsough; intellectutality is the one thing developed. It is true that among Englishmen there have arisen from time to time world-renowned philosophers and savants, just as there have arisen among Indians acute men of worldly wisdom and experience, but these exceptions go largely to prove the rule. The effort of university education in England has, therefore, been to draw men away from their materialistic tendencies and to lead them to philosophic and literary pursuits. The mistake was created when a like effort was made to train the Indian mind. Such a mind already highly philosophic and literary has no need of literary inducements and philosophic blandishments to allure it. To do so is to employ the adage found in common use, "as carrying coals to Newcastle". What is wanted is a system of education that will draw the Indian away from such idealistic pursuits and will make him look a little more at the world around him. India is in daily need of more men to plough her fields more scientifically, to dig her mines more methodically, and to sell and barter her thousand and one rich products on more economic lines. How is this end to be attained? The main outlines of the answer may already be conjectured. Briefly, it is to give Indian education a practical bent. There is less need of arts colleges and seminars: there is more need of schools and institutions teaching the practical sciences. The young men of India have little need of university courses. They have a greater need of practical training; instead of the matriculation examination some form of a school terminal examination may be introduced, in which subjects of practical use to the young students should be more and more introduced. By this device the bulk of the young men of India will be induced to give up their futile attempts to pursue higher education, and they will enter business at an age which will give them every chance of future success through the medium of experience. Those who desire to advance further in the arts and sciences may appear for the matriculation

SINHA, Kumar MANINDRA CHANDRA—*cont'd.*

examination and go onwards to the attainment of degrees. There should be no bar to students who really and earnestly strive to perfect themselves along these lines; but for all such the residential system of university education is strongly advised. One great and lasting benefit of the hostel attached to a college is that the students are in close proximity to the English professor, and any attempt to theorise or to exhaust the intellect by long and tedious hours of study is checked well in time. Each hour has its purpose set in the routine, games are given an equal chance with study, for in the development of the mind one often is inclined in early years to neglect the body, more especially so in India. The practical training given to the intellect in the hostel is often more to be preferred to the giving of innumerable lectures at unseasonable hours by itinerating professors whose ostensible and often unfulfilled purpose is to develope the mind, and with it the character of the pupil, a very laudatory aim but signally failing all along the way. Those desiring to go further in industrial pursuits should be given every facility in the technical institutions that are now being opened in India. The aimless study of growing young men should in all cases be stopped, for with these, learning achieved, with no opportunity in life to put knowledge into practice, there comes the inevitable result—stagnation leading on to dissatisfaction. The unrest of India may be, in a large measure, attributed to this cause along with few other. What is badly wanted in India is a system of education suited to India's needs, one that will go largely, if not wholly, to solve her many problems. We desire practical men who will serve her cause faithfully, not intellectual giants who will consume the sustenance of many idly, without any tangible result.

(Extract from the "Century Review" of September 1917.)

VI. GOVERNMENT AND EDUCATION.

General Memoranda.

CHATTERJEE, SRIS CHANDRA.

A great many of the evils, to which reference is made in the questions and which I presume are sought to be removed, are bound up with the question of the administrative policy of the Government and it may be necessary for me, therefore, to refer here and there to political aspects of the situation. Let me remark here by the way that whatever pious motives might have inspired the Commission, it would not be possible for it to effect any good, unless it be clearly brought home to the Government that a more liberal educational policy is necessary for remedying evils that are crying for reforms.

RAY, SATIS CHANDRA.

The end of education, says a great writer, can only be attained by identifying the national education with the living forces for good which are latent in the State. I fully agree in the sentiment expressed in this passage and consider that in an ideal university, its life and activities should be identified with the life and activities of the State. It therefore follows that all branches of education which are " necessary for service to, and advancement of " the State and which accordingly represent its activities, should be included in the activities of the University. Now, the " State " in India is the small group of citizens actually ruling or not, but belonging to the ruling race (which I shall call the *de facto* State) whose interests are apt to conflict with those of the people of the country; for, if human nature is universally what it is, the *de facto* State which is the embodiment of sovereign power, is likely to exercise it to its own benefit or advantage. There has, therefore, arisen, or is likely to arise a divorce between the *de facto* State and the Indian people, which has given rise, or is likely to give rise, to a similar divorce between the latter and the University, controlled as it is by the *de facto* State. It is also for this reason, I believe, that the Government of India has been hitherto perplexed to formulate and carry out a truly national educational policy in India, in complete harmony with the life, traditions, civilisation and the modern economic activities of the State, because it has been hampered by the difficulty of reconciling the interests of the *de facto* State and the Indian people. A university which is perpetually out of touch with these living national forces may prosper for a time under artificial stimulants; but if its development is to be progressive, spontaneous and permanent, it must be continuously animated by these forces. Hitherto the inspiration for the educational life and policy of the country has been mainly drawn from a foreign source, and we have still to rely on that source for our " highest teachers " and the highest training of our youths. If it comes to pass that we may be obliged to depend on that source for ever, the inevitable result will be that our University will fail to develope within itself those germs of life and activity which are necessary for acquiring for it that pre-eminent position of independence and strength which I consider to be one of the essential features of an ideal university. In order, therefore, to endow our University with a status and prestige worthy of the highest University, we must be left with a freedom to do our best gradually to develope it from within and to make it independent of the foremost universities of Europe, to which it now stands, as it were, in the position of an affiliated college. To develope the opportunities for the *highest* training, it is, therefore, absolutely necessary that our University should be sovereign, *i.e.*, it must have a large degree of freedom of teaching and study, and its life and activities should stimulate and be in turn stimulated by those of the State. The relation between the State and the University should be analogous to that between life and breathing—neither can exist without the other. Under present conditions, the *de facto* State draws its life and sustenance from foreign universities; the Indian State from Indian non-sovereign universities. There co-exist, as it were, two states with

RAY, SATIS CHANDRA—*contd.*

two lives within the same body politic nourished and sustained by two different sources. There is no fusion of interests between the two states, and the one draws its life blood from a weak body and the other from a strong and vigorous body. If the status and position of the Indian State rises to the elevation of the *de facto* State, the Indian universities will also attain to the eminence of the English universities. And this (*i.e.*, the fusion of the interests of the *de facto* State and the Indian people) is the sole condition on which the highest ideal of a university is attainable in this country. A sovereign university, which is synonymous with an ideal university, cannot live and thrive in a non-sovereign state.

I am bound to confess that the Calcutta University has many defects and has made some mistakes during the last ten years of its teaching career. But I must concede that they were inevitable and incidental to the difficulties of administration of a novel machinery. Reforms are no doubt necessary and some of them are urgent. The directions in which they should be carried out are the following:—

(*a*) Extension of accommodation by removing the buildings to a big site in the suburbs, the development of an *esprit de corps* among the teachers and the students, and the grant of freedom to teachers to exercise their powers of discipline over the students.

(*b*) The improvement of the position and prospects of teachers; and, as a compensation for the small salaries which they receive in comparison with those of members of other services, they should be endowed by Government with some sort of distinctive social rank.

(*c*) The institution of a few scholarships to enable some of our young teachers to study in foreign universities to qualify themselves for the highest teaching.

(*d*) Adequate Government subsidies for conducting the University in an efficient manner until public benefactions come forward. It is not difficult, however, to obtain such benefactions from wealthy people if the Government address an appeal to them. Such appeals have never failed to find response in the past in respect of matters other than educational; and it would not, I daresay, be improper nor undignified on the part of Government to make such an appeal on a matter of prime national importance. Public benefactions will, I expect, flow in spontaneously when society begins to feel, in its ramified activities, the benefits of University teaching.

(*e*) Recognition of the truth that the Government and the representatives of trade, commerce and industry should co operate with the University to promote the interests not of the *de facto* State, but of the *de jure* State.

(*f*) Reforms in the system of recruitment for the public services: and the encouragement of a demand for the best university men on equal terms with Europeans. (I would not object to a small differentiation in salaries.)

(*g*) Expansion of the activities of the University for the highest training of Indian youths in agriculture and forestry, commerce, technology and engineering in all their branches, fine arts, etc., so as to develope to their fullest capacity their individual faculties in the respective branches to which they are most congenial.

The above should, in my opinion, be the minimum of reforms necessary to reconstruct the University on a sound and satisfactory basis. So long as it continues to occupy a small or subordinate place in the State, so long reforms suggested on any other basis will be unreal, infructuous and merely palliative.

VII. HEALTH OF STUDENTS.

General Memoranda.

BASAK, KRISHNAPRASAD.

Throughout the civilised world the necessity is fully admitted of a thorough and regular study of children with a view to the following :—

(*a*) Determining the standard, mental and physical, of the normal child.
(*b*) Finding out their defects in body and mind and prescribing the proper remedy.
(*c*) Adapting methods of training and education to the stage of their growth and development.
(*d*) Differentiating the mentally deficient from the normal and making separate provision for turning the former into useful and happy members of society.

Such studies in England, America, the Continent and, very recently, in Japan have been attended with the most satisfactory results. I drew the attention of the public to the need of medical examination of students in 1903, and that of the psychological in 1911, through the medium of *East and West* and *The Modern Review* but with practically no response. As the time now seems ripe for making a start, I have renewed my appeal and hope to see the idea a *fait accompli*.

At the very outset, it should be made clear that the aim is the true welfare of every child studied and not the mere collection of data for statistical or other purposes. Practical as the aim is, it will materialise itself in improved health and vigorous mentality of the individual child. At the same time the mass of information that will be collected will be readily available for the advancement of scientific study and of public health and sanitation, no less for the prevention of infant mortality.

The statement of aim is enough to show that the Government, the University, the district boards and municipal corporations, and all educational and charitable institutions dealing with children in any form on the one hand, and parents, teachers and medical men on the other are all vitally interested in the movement.

A beginning may and should be made with the pupils on the rolls of the high schools situated in Calcutta. A careful study of the number of such schools with their population shows a minimum of 15,000 children. The working days of Calcutta schools in the year amount to a little over 230. Making every allowance for all sorts of contingencies, regular study of children may be made for 200 days, which works out a daily average of 75 children. Striking a golden mean between the minimum time required for general, and the maximum for special, examination, forty minutes per child should be a fair estimate. It means 50 hours' work for every day.

Every child should be put to mental and physical tests at least once in the year, special cases being examined as many times as necessity warrants, followed, if need be, by reference to experts in diseases of the mind and body. The study will begin with the child, sojourn into the regions of science in order to find out his conformity or non-conformity to the normal type and the measures of his variability, and come back to him with a statement of measures, preventive or curative, for ensuring his real welfare. For this purpose there shall be established a close touch between the workers of this institution, on the one hand, and parents or guardians, teachers, medical men, health officers and superintendents of reformatories and lunatic asylums, on the other.

This brings me to the question of the workers necessary for carrying on the business of the institution. For regular examination fifteen whole-time qualified assistants (Rs. 900) shall be the minimum requirement. These may easily be recruited from among the graduates in medicine and psychology and diploma-holders of medical schools. For purposes of special examination and working out the data with reference to each child so as to find out his defects, mental and physical, and prescribe the cure or prevention, as the case may be, two experts (Rs. 400), one psychologist and one medical examiner, are necessary. Over and above these workers, there is to be a whole-time officer (Rs. 350) in charge of the entire institution whose business shall be to co-ordinate the work done by the experts and their assistants; communicate with the

BASAK, KRISHNAPRASAD—*contd.*

school authorities and parents or guardians; move, as necessity arises, the Government, the municipalities and other bodies concerned; do every thing to ensure the smooth working of the institution; and be ever on the alert to extend its operations to new fields and to promote developments in directions where children are the central figure. In short, this person should be the heart and soul of the movement whose enthusiasm tempered with experience of children at home and school will supply the motor power.

The initial expenditure by way of apparatus and appliances (Rs. 2,000), forms and furniture (Rs. 2,000), library and journals (Rs. 1,000), may be expected to amount in round numbers to Rs. 5,000. It should be noted here that some of the apparatus used in laboratories of experimental psychology may, without the least detriment to their efficacy, be made in this country. Hence the modesty of the figure given above.

The recurring expenditure will, besides the pay of the staff, include the charges of the office establishment, rent of the house wherein will be located the office and the laboratory and conveyance charges for visiting schools. This will come up to about Rs. 2,000 a month in round numbers and should not be grudged, if efficient work be the *sine qua non* of the existence of such an institution.

Since the Government and the Municipality are vitally interested in the true welfare of children, they may reasonably be expected to jointly make it possible to inaugurate the movement. Material help may also come from educated people who understand the need of providing the cheap ounce of prevention to spare the adoption of the costly pound of cure, not unoften without any satisfactory results. Parents and guardians who will be directly benefited are sure to put in their mite when they are convinced by experience of the good that this institution intends to achieve. As the data to be collected shall be available for the use of studies in experimental psychology, the University may naturally be expected to give the movement a substantial measure of help.

There shall be a governing council composed of representatives of different interests concerned. The business of this council shall be to administer the affairs of the institution, make appointments, regulate receipts and disbursements, cause reports to be published, and in every way secure the efficient working of the organisation. It shall be a public institution and shall necessarily be registered under Act XXI of 1860 (Charitable Societies' Act).

TESTS.

Physical.

1. Height—Standing and sitting
2. Weight.
3. Head—Circumference and diameters.
4. Chest—Inspiration and expiration.
5. Sight—Acuity, heterophoria, fields of vision and of colour vision, colour vision, visual perception span.
6. Hearing—Acuity, localisation, localisation of movement, sensitivity to tickling.
7. Pressure—Acuity, least discernible difference, pain threshold.
8. Kinaesthesis—Acuity.
9. Taste—Acuity.
10. Smell—Acuity.
11. Teeth.
12. Heart.
13. Lungs—Vital capacity.
14. Glands.
15. Adenoids.
16. Deformity and abnormal peculiarity. (Hernia, phimosis, spinal curvature, etc.)

Mental.

1. Immediate memory span.—Articulate sound, visual symbols, colour, musical sound, form.
2. Retentiveness.
3. Association—Train of thought, word-association, reactions, emotional reactions.

BASAK, KRISHNAPRASAD—*contd.*

4. Active perception—Attention: duration, span, range. Imagination: linguistic, inventive. Reason:
5. Control of muscles in fixed position—Body, hand and arm.
6. Accuracy of movement.
7. Steadiness of movement.
8. Speed—Movement.
9. Fatigue—Muscular, mental.
10. Reaction—Simple and compound.
11. Suggestibility.
12. Image type.
13. General Intelligence—(Binet test).

A FEW FACTS FROM PERSONAL OBSERVATION.

What led me to think of the need of a child-welfare institute on the lines laid down above may be briefly stated:—

(i) My eldest son suffered from many ailments during childhood. His nature and nurture had therefore to be studied carefully. This familiarised me with a number of diseases peculiar to children and particularly those affecting the growth of their body and the training of their mind.

(ii) Another son of mine, when about twelve years old, began to grow alarmingly dull in understanding, accompanied with shortness of hearing. He was all along known as a bright boy and did almost all work in connection with his education at home unaided. Observation led me to suspect the growth of adenoids which suspicion was confirmed by an expert surgeon. A month's treatment cured the boy to the return of bodily health and mental vigour.

(iii) In teaching three of my children at home much time had to be spent in finding out the nature and extent of their mental powers and suiting accordingly the method of teaching them each subject, such as giving them notions of geographical terms and perspective in drawing, creating interest in history and geography through observation, experiment and excursion.

(iv) While discussing child psychology with the teachers of a high school, the absence of any information about the laws of growth, mental and physical, of our children was keenly felt. Yet there can be no doubt that of all the qualifications of a teacher the very first is a knowledge of the normal course of mental development of every child, particularly of the appearance of the instincts that blossom, ripen and pass into higher phases, provided they are given proper play at their nascent stage. Failure in rousing the interest of children in plants, animals and objects was traced to beginning lessons on them with *form* and *colour* instead of *use;* in drawing, to the neglect of using men and things of every-day use as models and to exacting accuracy and fineness in execution; in history and geography, to starting lessons on them with the help of books and maps instead of pictures, excursions and observations; in English, to beginning its teaching before giving the child a good grounding in his vernacular and his evincing any interest in the English people. Failure in keeping attention fixed on the subject under instruction was, in many cases, due to a disregard of the type of memory and level of intelligence of the pupils in the class.

(v) A preliminary study was made with the help of some friends of 371 children, consisting of 179 boys and 192 girls. Record was made of the age, height and weight of each on the physical side, and on the mental. In the absence of normal figures relating to the height and weight, according to age, of Indian children and realising the marked difference between the Indian child and the British or the American, Livi's figures relating to Italian children, living in the sunny south of Europe, were taken as a guide and amended in the light of our experience. Comparison with such amended figures showed that out of 188 girls 98 were suffering from vary-

ing degrees of ill-health and of 176 boys 103 were similarly situated. The teachers consulted confirmed the findings noted above.

(vi) Mental tests not having been applied, nothing could be made out about the mentality of the children studied. This did not prevent me from finding out the extent of school retardation with reference to those under instruction. These were 328 in number, consisting of 155 boys and 173 girls. Taking the university requirement, namely, the completion of the sixteenth year of age on the eve of the matriculation examination, as the tentatively normal age for reaching the standard of knowledge expected to be possessed by a matriculate, it was found that 250 children were above the normal age. Of these 117 were boys and 133 girls. The figures relating to girls did not, due to our lack of interest in the education of girls and women, surprise me. But the question of boys stands on a different footing, since every one of them has in time to earn his bread. Each such case calls for an enquiry in order to find out how far his own defects, mental or physical, have to do with retardation and what remedy can be prescribed to tackle with what may be a preventable wrong so that it may not become an irremediable curse through neglect.

GHOSH, Rai HARI NATH, Bahadur.

I must not lose this opportunity of mentioning a few convictions of mine referring to education as a means of securing efficiency for any people :—

I think that we can hope to develope a more efficient generation of men and women, if our education be orderly and sound from the outset; and a good order with a homogeneity of plan of effective control and guidance, and sound and effective teaching can only be secured in *Boarding Institutions*. This is the western method—boys and girls of those efficient races of men and women, are always put into boarding houses and convents as soon as their education is begun. The first thing they learn is discipline, which can be far more easily instilled into them than into older college students. And then they gradually develope a sense of duty which constitutes a very important step towards progress in any work, which they are required to do. They, moreover, learn to live in a sanitary way, which in their future life gives them a considerable protection against diseases and lightens so much the work of sanitarians, whom they must feel keener to help and keener to learn from and not keener to oppose as in many instances even now. Thus I can say, after all, that there will be such and other very important advantages of far-reaching consequence in training our children in boarding institutions. Further, we must not be misguided by an imposing array of a few brilliant scholars in any branch of knowledge, for it will be seen that for want of discipline and want of sanitary habits and sufficient sanitary knowledge, many such men have ceased to shine in their after life.

GRAY, Dr. J. HENRY.

As requested by the Commission I have the honour to submit such information as I have been able to gather in Calcutta regarding the place of physical education in American educational institutions. If further information is desired it may be necessary to send abroad for the catalogues containing it. I judge, however, that the enclosed will be sufficient.

I have arranged this information into three sections or groups :

(1) The regular required work for all under-graduates in two of the leading educational institutions in New York City, *i.e.*, Columbia University and the College of the City of New York. These are typical of practically all the best American colleges in the States and Canada. I enclose for your perusal

GRAY, DR. J. HENRY—*contd.*

a paragraph from the report of the United States Commissioner of Education for 1912 (Appendix.)

(2) For the work offered by a special school or college of physical education under the University the following summary of the work offered by the Teachers' College, Columbia University, is a good illustration. While this institution is one of the foremost along such lines it is by no means the only one. Other examples would include the universities of Oberlin, Chicago, Michigan, and, I think, Leland Stamford. The work at Teachers' College is grouped under two of their schools—"The School of Education" and "The School of Practical Arts."

In the School of Education courses in scouting and vocational leadership are found under the general heading of vocational education. While under the "practical arts" heading, courses in biology, physiological chemistry, nutrition, hygiene, public health, nursing and health, and physical education are found.

In the School of Practical Arts, a full course of four years in physical education is offered. It groups itself under the following three main headings:—

(*a*) Teaching of hygiene and physical education.
(*b*) Supervision of play grounds.
(*c*) Supervision of hygiene and physical education.

The work in (*a*) and (*b*) may be included in four-year programmes leading to the degree of bachelor of science and a diploma. The work in (*c*) is open only to graduate students.

The subjects are similar in a general way to those offered in the School of Education with the practical work in addition.

In general the procedure is—A student elects physical education as his major subject and with it carries a full college course for which he gets his degree. This for the quantity of work done, while the diploma is awarded for the particular, specialised work taken, in this case, for physical education.

(3) Finally there are the educational institutions that offer full-time courses in physical education only. Really, technical schools, for physical education has advanced to the point where it is recognised as a separate profession, these institutions granting in some cases a degree (technical) and in other cases a diploma.

APPENDIX.

Report of the Commissioner of Education, for year ending June 1912, of the United States of America, volume 1, page 357.

Typical Health Teaching Agencies.—College work in hygiene. In order to illustrate what is being done in teaching in connection with regular college work, the following brief summary of the work done in the College of the City of New York is offered:

The department of physical instruction and hygiene of the College of the City of New York had for the year 1911-12 a staff of 17 professors, tutors, and assistants engaged in carrying out a programme including the following lines of work:

(1) Individual instruction in hygiene through a medical examination, hygiene instruction, and regular conferences;
(2) medical and sanitary supervision of all students with reference to board of health regulations, medical consultations, medical examination of athletes, and emergency treatment;
(3) lectures on hygiene (eight terms);
(4) instruction in physical exercise (drills with apparatus, swimming, outdoor games, and sports);
(5) general athletic control.

A good part of this work is prescribed for all students in the college.

ROY, HIRA LAL.

One of the functions of the University is to turn out good citizens. To accomplish this, students should be given opportunities and inducements to awake in themselves the spirit of civic rights and responsibilities. Organisations which are best likely to promote such spirit may be classified as follows :—

(*a*) Every college should have its "social service club" managed entirely by the students with some sympathetic professors as advisers, but without any direct control. The whole organisation should depend on the voluntary service of the students. Its activities may be directed in the following lines :—

(i) Opening and conducting night-schools in the college premises and outside.
(ii) Nursing the sick and the poor.
(iii) Reading and story-telling to the elderly workmen in slums and *bastis*.
(iv) Taking care of street boys and keeping them off from gambling and other evil doings.

(*b*) Law college students can engage themselves in social service work with profit to themselves and to the society by opening a "Free Legal Advice Bureau" for the poor honest litigants. Only the third-year law students should take part in it.

(c) Similarly a "Free Medical Advice Bureau" can be opened by medical students.

The idea of loyalty to the college and the University has become ridiculous to most of the under graduates. The reasons for the existence of such an unhappy state of affairs are many and of a various nature. It is impossible for me to dilate on the subject in this short and sketchy note. I shall merely point out one of the remedies, though only a partial one.

In western countries as well there is many a tussle between the college authorities and the under graduates, but these occurrences remain hidden within the four walls of the college and are easily forgotten. These very under-graduates show themselves up as staunch supporters of the reputation of their college and university when they have to encounter any outsider.

But in Bengal the case is entirely different. Here the spirit of loyalty is entirely lacking.

If the students are taken into confidence, if their grievances are given a patient hearing, and arguments for certain steps taken by the authorities but which are unpleasant to the students are set before them, then the whole student body will feel their importance and a spirit of co-operation will grow in them, and with it, as a necessary consequence, the spirit of love and loyalty.

But no one can argue with the whole student-body just as it is impossible to argue with a mob. Therefore the proper method of procedure would be to organise a "*Students' Council*"—

(A) To represent the students in matters affecting their interests.
(B) To afford a recognised means of communication between the students and the college and university authorities.
(C) To promote social life and academic unity among the students.

It will be no new innovation, for similar institutions are already in existence at Edinburgh, Harvard and many other universities.

Oral Evidence.

GRAY, DR. J. HENRY.

28th February 1918.

Department of Physical Education.—Physical education should take its place as a definite part of the university system and should be recognised as having such a place. There should therefore be an adequate equipment, staff and programme of work outlined, for physical education.

GRAY, Dr. J. HENRY—*contd.*

2. In regard to Calcutta University as at present constituted this staff should act in an advisory capacity to the affiliated colleges. Courses would be drawn up for the use of colleges, examinations set and thorough inspection carried on. The head of this department should deliver university lectures. A university field should be provided where intra-and inter-collegiate matches and perhaps inter-university matches could be played.

3. Each college should employ a staff of physical instructors.

(*a*) On the theoretical side, the college staff should give some 50 lectures in two years on matters of health concluding with proper tests which should count towards taking a degree. This instruction might be given in the vernacular.

(*b*) On the practical side, every student should undergo the following:—

(i) A thorough medical examination as soon as possible after his admission to a college. This examination of a student would take about 20 minutes. If the number of students was very large, a second examiner might be necessary. Some Bengali students have objections to this examination, but it is not a religious objection. When such objection is serious the student may be referred for examination to his family physician, whose report may be accepted if such person is acceptable to the authorities of the Physical Department of the University; or if still unwilling and unable to present satisfactory reasons, a recalcitrant student might be denied the privilege of attending the University. The examination should be repeated in normal cases once a year.

(ii) Regular class work for the first two years.

A student would be classified in accordance with the results of the physical and medical examination, either as able to take the regular collegiate physical work in the regular classes, or as requiring special work in special classes. The average student should have, under supervision, not less than two periods a week in class work for the first two years of his college course in actual physical developmental training, and three afternoon periods for games under supervision. Groups might include as many as 200 students.

(iii) Optional work for the last two years.

For the last two years and in post-graduate work, physical education should be required but may be optional as to whether it is of the gymnastic or games type. Three periods per week should be given to this in out-of-school time

(*c*) The equipment should consist of the following:—

(*i*) Medical examination offices with the necessary medical, physical and anthropometric apparatus.

(*ii*) Gymnasium or exercise hall or exercising space in the open 60′ × 100′ clear, as a minimum.

(*iii*) Arrangements for changing and bath, consisting of lockers, shower bath and taps and, when possible, a swimming bath.

(*iv*) A lecture room for small classes and the use of a larger room for lectures to a large group.

(*v*) Facilities for recreation and games, consisting of tennis, volley-ball, basket-ball, badminton, fives, etc., attached if possible to the gymnasium or exercising space.

(*d*) Competitions in games should be worked out as a definite part of the regular programme of work. Indian games should be encouraged and any or all games should be introduced which require a small or moderate amount of space and use a large number of players at one time. This is especially applicable to Calcutta where lack of space prevents English games such as cricket, football, etc., being played on a big scale, There is at present no intra-collegiate organisation of games. There should also be an extension of the inter-collegiate competitions. The aim and plan should be to provide recreational facilities for every student in the college.

4. The witness thought that the average school boy had sufficient to eat. The Bengali boys take kindly to these physical exercises.

GRAY, DR. J. HENRY—*contd.*—RAY, RAMES CHANDR

5. *Trained teachers.*—There should be an adequate training centre for physical instructors. This is essential and could be developed in one of the two following ways—

(*a*) It should be connected with the ordinary training of teachers. All students of normal colleges to receive a certain amount of advanced lecture work, and normal practice with emphasis on the pedagogy of physical education. In addition, for some students further courses should be provided enabling them to specialise in this branch of education.

(*b*) By establishing a special school or college of physical education under the University.

Such a college or technical school should provide a three or four years' course of work, with special equipment, staff and curriculum and grant at the conclusion a diploma or even a degree for such work.

RAY, RAMES CHANDRA.

12th February 1918.

The guidance of public opinion.—Students, teachers and guardians are ignorant of, and, what is worse, indifferent to, the laws of health. The ordinary diet of the Bengali is too poor in nitrogen. Such a simple device as the substitution of *chapaties* for rice once a day would be beneficial. The witness made the following further suggestions for improvement:—

(*a*) Standard diet lists should be prepared for the benefit of students.

(*b*) In addition to these lists, a doctor should be attached to a hostel or a group of hostels.

(*c*) A standing committee for the promotion of health among students might be constituted.

Advice in regard to physical exercise also would be beneficial. Football is too violent for Bengali boys, physically ill-developed and eating ordinary Bengali diet. An annual report showing the result of an examination of the health of *all* students, say of Calcutta, should be published by the Committee. On the basis of such annual reports for a series of, say, five consecutive years, should be calculated the minimum standard of diet and physical exercise suited to Bengali boys and girls of different ages. Compulsory action in enforcing exercises would be unwise *at present*. Gradual improvement is all that can be anticipated for the present from this educative propaganda. Medical examination of school boys and students all over Bengal should be introduced as soon as possible after the publication of the five consecutive years' report. Voluntary, continuous and sympathetic work is necessary and will be forthcoming. The out-of-pocket expenses of the Committee should be paid by the University.

2. *The hours of study.*—The hours of study at schools are too long specially in the lower classes, and some change is necessary. The school hours might be from 7 to 10 in the morning, after which the boys would take their food. After this meal might follow more work for an hour or so in the afternoon, only for the four upper classes, and then recreation. The witness referred to a school in Calcutta where an additional fee of Re. 1 is imposed per month per boy, the school funds contributing another rupee per boy per month, out of which food is provided to the boys in the middle of the day.

3. *Examination of boys.*—The medical examination of each boy takes about 15 minutes. This is a thorough examination with the exception of the chest and abdomen, and includes only a rough testing of the vision. If possible, a test of some parts of the body should be conducted every three months, *e.g.*, eye-sight, body weight, chest-expansion, etc.

4. *Residence.*—A new type of warden should be appointed. He should be a distinguished graduate of character, a sportsman, and should live with the students of the institution in which he teaches and have some knowledge of the laws of health. The dormitory system is better than cubicles or single rooms, as supervision is easier. The health and physical fitness of students is deteriorating. The witness considered the situation very serious.

SEGARD, DR. C. P.

12th February 1918.

Medical inspection of schools.—There is very little work along this line being done. Several of the mission schools have medical missionaries who have reported with regard to the physical condition of students in mission schools, especially with regard to tuberculosis. The Young Men's Christian Association, 86, College Street, Calcutta, have examined such of its members as are college students and have given them advice with regard to their condition and in case of physical deformities have given medical gymnastics for treatment. Government have had the services for the past nine years of the Director of Physical Education, Young Men's Christian Association. For five years the Physical Director devoted one-third of his time to Government and for the last four years he has devoted half of his time to Government service. His work has conclusively shown that the need for medical inspection is very great. The examination of college students has shown that there is a large proportion of students infected with venereal disease, skin diseases, etc., and that there is little chance in Calcutta for their receiving proper treatment. A large percentage of students in Calcutta are from the mofussil and come to Calcutta ignorant of many things and the result is disease and afterwards treatment by quacks.* The facilities of the Medical College dispensaries are insufficient, and the college students do not care to be seen among the patients of the out-door dispensaries of the Medical College Hospital. It is, therefore, necessary that some provision should be made with regard to a dispensary for the college students where they may be—

(*a*) physically and medically examined,
(*b*) told of their condition,
(*c*) given treatment when too poor to pay for same, and
(*d*) advised to consult a qualified practitioner when able to pay.

This dispensary should be outside the Medical College Hospital compound.

A start in the medical inspection of school children might be made in the mofussil, particularly in district centres by the district boards. Qualified medical men on the staffs of district boards could do a large part of the medical inspection.

2 *Hygiene and sanitation.*—The present condition of schools in Bengal is exceedingly bad with regard to hygiene and sanitation. The class room is dirty, the floor is seldom or never washed, and the desks and benches, windows and walls are filthy. Light and ventilation are given scant, if any, consideration. Latrines also require a great deal of consideration. At the present time most of the receptacles for waste are not covered, little disinfectant is used, and in many schools there is no latrine. The latrine question alone is one of considerable importance to Bengal as the jungles are, in many cases, used instead of building a latrine. Sweeper service is also very bad and the whole question needs to be considered very thoroughly before a decision is made.

Under these conditions it is absolutely impossible for discipline to be maintained, nor can the students be expected to maintain a clean outward appearance when the schools are so very dirty. In the case of drinking water, we find that there has been gross carelessness. Schools along the Ganges are in the habit of taking the raw water from the river and using it without boiling or the use of a disinfectant. In other schools, an insufficient supply of wood is allowed for boiling the water.

3. *Physical training.*—Physical training, as such, can do very little under the existing conditions of low grade teachers, low pay and present school environment. The low grade teacher cannot control the boys or exact attendance or discipline from them. To secure a good teacher, the pay should be increased and provision for training of teachers provided. At the present time there are two courses of six weeks each for the training of the present low grade teacher. This should be increased to a six months' course and the work of training them should be carried on jointly by the David Hare Training College and the Machua Bazar student playground where the present course is now held. The pay should be increased from Rs. 35 to Rs. 50 in high schools, Rs. 50 to Rs. 75 for training

* I saw Colonel Calvert and he agreed.—C. P. Segard.

SEGARD, Dr. C. P.—*contd.*

schools and Rs. 75 to Rs. 100 in colleges and training colleges. This pay would mean that a higher grade man would come up for the post, take this six months' training, and be able to go to a school, conduct the physical training, have full charge of games and be able to teach hygiene. This type of teacher would also be able to counteract by exercise the tendency of deformity among school children and constipation which is so common amongst students. Physical training and teaching of hygiene must be made compulsory in colleges.

4. *Hostels.*—Schools are using more and more attached hostels and therefore are taking over the responsibility of parents. This is a very serious question. Hostels are on the increase because there are the following tendencies on the part of parents :—

(*a*) To get their boys out of an unhealthy district.

(*b*) To get him away from home influence and home duties in order that he may have more time for study.

(*c*) To get him nearer to the school in order that he may be nearer the teacher who is acting as tutor.

(*d*) To place him in a better school than his own district affords.

(*e*) To get an unruly boy away from home.

Under these conditions, it would be seen that the good school will need more hostel accommodation and that the healthy districts will require more hostels. It is for this reason that Calcutta schools and colleges are crowded with students from the mofussil. The increase in hostels cannot be stopped unless more good schools are in evidence and more districts become known as healthy districts. It is necessary, therefore, that strict rules and regulations for the building, maintenance, and control of hostels be laid down at once. At the present time hostels are controlled largely by teachers whose only qualification is their financial need and not because they are particularly fitted to run hostels. Only teachers of recognised ability should be allowed to control the hostels. With a qualified teacher in the hostel, we might then expect that cleanliness with regard to dirt, parasites, bath-airing of bedding, light and ventilation, would be carried on.

5. *Summary.*—It is desirable that the University or the Department of Public Instruction or the two combined, have a department of hygiene which will include medical inspection of schools, hygiene and sanitation, and physical training. The head of this department would be the Director of Hygiene. He would lecture on hygiene in the University and colleges. There would be a dispensary and office in the Calcutta University for examination and treatment of students. There would be an assistant in each of the three departments mentioned. The dispensary would be an out-patient dispensary entirely. No distinction would be made between students who can afford an outside practitioner and those who cannot. With regard to treatment, there would be no recognisable distinction between venereal patients and others. This department would also inspect schools and colleges along the three lines mentioned and report to the University with recommendations. They would also lay down standards in the three departments. Government should take the lead in these matters, and see that their schools are such as may be used as a pattern for aided and un-aided schools to follow. In many cases, Government schools are as bad as private, aided or unaided, schools and have not in the past taken a lead in education.

At the last meeting of the Bengal section of the Medical Missionary Association, it was recommended to the Bengal Missionary Council that steps be taken to combat the increasing evil of venereal disease. It was also recommended that a medical and an educational officer be secured to work along these lines in mission schools.

VIII. MADRASSAHS.

General Memoranda.

HARLEY, A. H.

The Calcutta Madrassah was founded by Warren Hastings in 1781 for the training of Muhammadans as officers in the East India Company's service. When Persian ceased to be the court language the larger section of the community feeling that the study of English and the adoption of western methods and ways did not consort with their ideas held aloof. From the middle of last century efforts were frequently made to bring the Calcutta Madrassah and with it the affiliated madrassahs throughout Bengal into line with Government and private arts colleges, but the most that was conceded was the introduction of English as an optional subject into the Arabic Department and the formation of an Anglo-Persian Department, devoted to the modern school-course of study. At present about one-third of the 550 students in the Arabic Department take English in preference to the alternative language, Persian.

In 1911, Government decided to introduce into the Eastern Bengal madrassahs a revised course which in effect is a compromise between an oriental and a modern course. In the Punjab, a course had previously been introduced which retained the orthodox subjects and added English, the University guaranteeing the standard of both and conferring a degree. Further, in Egypt during Lord Kitchener's recent administration, a revised course on these lines was introduced into the stronghold of orthodoxy, al-Azhar. The trend, therefore, favours the retention of the old and the addition of the modern, and it is not out of place to mention that certain orientalists have advocated the erection of the new on the old and not the replacement of the latter as has practically occurred.

It would not however be fair to regard madrassahs as theological departments only and to award alumni a special degree and leave them with no better prospects than they now enjoy. Students of madrassahs would in an Islamic country be qualified for Government posts.

The course of studies in these orthodox seminaries is traditional, *i.e.*, the "sciences" necessary for the interpretation of the Quran are the main subjects of study, the remainder being those sciences which the Arabs learned from foreign peoples. In the Quranic sciences are included the traditional or religious sciences and the linguistic sciences; in the latter, the intellectual or philosophical sciences (also called the sciences of the foreigners).

I.—Native sciences.

1. Quranic exegesis (Ilmul-Tafsír).
2. Quranic criticism (Ilmul-Qirá'át).
3. Science of apostolic tradition (Ilmul-Hadíth).
4. Jurisprudence (Fiqh).
5. Scholastic theology (Ilmul-Kalám).
6. Grammar (Nahw).
7. Lexicography (Lughah).
8. Rhetoric (Bayán).
9. Literature (Adab).

II.—Foreign sciences.

1. Philosophy (Falsafah).
2. Geometry (Handasah).
3. Astronomy (Ilmul-Nujúm).
4. Music (Músíqí).
5. Medicine (Tibb).
6. Magic and alchemy (Al Sihr-wal-Kímiyá).

The foreign sciences are almost entirely omitted from the present Bengal Madrassah course, only philosophy (including logic) and geometry being retained, and it is unlikely that, of the remaining four, any, except medicine, will be restored to the curriculum. The Punjab University has organised the Madrassah and Sanskrit orthodox courses and examines the candidates. Lately still greater facilities have been extended to them

HARLEY, A. H.—*contd.*

and a student possessing the title, *i.e.*, honours course diploma can appear in B.A. English only and on passing is given the B A. degree (*vide* Punjab University Calendar 1917-18, page 161, 11A).

The Punjab scheme of oriental study is as follows :—

First stage proficiency.	Second stage high proficiency.	Third stage honours.
1. Arabic . . .	Title=Maulvi Alim . .	Title=Maulvi Fazil.
2. Persian . . .	„ Munshi Alim . .	„ Munshi Fazil.
3. Sanskrit . . .	„ Visharada . . .	„ Shastri.

According to rule 12 of the regulations for 1917-18, relating to diplomas and literary titles in oriental languages "a person who has passed any of the above examinations in oriental languages may present himself for examination in the English paper of the matriculation, intermediate and B.A. examinations of the arts faculty successively by paying half the usual fee of the said examination, and if successful shall receive from the University a certificate testifying to his having passed in English in the examination concerned." And according to rule 11A for the bachelor of arts examination (page 161, Calendar 1917-18), "any candidate who has passed the honours examination of the oriental faculty in Arabic, Sanskrit or Persian, and who has passed in the subject of English in the intermediate examination of the arts faculty under regulation 12 of the regulations relating to diplomas and literary titles in oriental languages, may be admitted to the B. A. examination in English only on payment of the usual fee and if he obtain pass-mark in this subject he shall be deemed to have passed the bachelor of arts examination."

Comparative table of the Calcutta Madrassah and Punjab University Oriental courses :—

Subject.	CALCUTTA MADRASSAH. Senior certificate (fourth and fifth years).	PUNJAB UNIVERSITY. Maulvi Fazil or honours course (two years).
Arabic poetry . .	Diwani-Mutanabbi . .	Diwan-i-Mutanabbi.
..	..	Diwan-i-Hamasah.
..	Sabu Muallaqat . . .	..
Arabic prose . .	Maqamat-i-Hariri . . .	Maqamat-i-Hariri
Quran commentary	Tasri Jalalain . . .	..
..	..	Tafsiri Baidhawi.
Prophetic traditions .	Mishkatul-Masabih . .	..
Prosody . . .	..	Muhittud Dairah.
Rhetoric . .	Mukhtasar-ul-Maani . .	..
..	..	Mutawwal.
..	Faraid	..
..	Qutbi	..
..	..	Sharhi-Matali.
Logic . . .	Sullam	..
..	..	Hamdullah.
..	..	Rashidiyyah.
..	..	Sadrah.
Philosophy . .	Hidayat-ul-Hikmat . .	..
..	Ad-Durus-al-Awwaliyyah .	..
..	Hidayah	Hidayah.
Muhammadan law	Tawzih	..
..	Musullamus Subut . .	..
Composition . .	Essay and translations .	Essay in Arabic.
Geometry . . .	Euclid, Books III and IV.	..
Grammar . . .	Mufassal	..
Theology . . .	Nasafi	..

Further, our students are obliged to take up English or Persian in addition, whereas the Punjab candidate for Maulvi Fazil may confine himself to Arabic.

The situation may therefore be summed up thus:—

(*a*) The Calcutta Madrassah senior certificate course is practically the same as that of the Maulvi Fazil of Punjab University.

(*b*) The Maulvi Fazil candidate can simultaneously or subsequently take up English, and on passing English of the B.A. standard is awarded the B.A. degree.

(*c*) The Calcutta Madrassah senior certificate student is given an option between English and Persian. The Persian course is quite as difficult as the Punjab University Munshi Fazil or honours Persian examination which corresponds to the Maulvi Fazil examination in Arabic and also entitles the holder to appear in B.A. English and on passing to secure the B.A. degree. The Calcutta Madrassah student who chooses English reads this subject up to a standard which is generally equivalent to the matriculation standard of Calcutta University. Frequently students offer in the senior certificate examination all three subjects, Arabic, English and Persian having studied privately the remaining optional language, English or Persian as the case may be.

(*d*) Students of Calcutta Madrassah Arabic Department can on passing the senior certificate examination proceed to a further course of study for three years at the conclusion of which the Title Fakhr (Pride) of the Apostolic Traditionists is bestowed. There is no such course in the Punjab. In view therefore of the similarity of the Calcutta Madrassah senior certificate course to that of the Maulvi Fazil and the superiority of Calcutta Madrassah title class students it is reasonable to request that students of oriental languages and religion in this province should be granted privileges not inferior to those of their co-religionists in the Punjab.

In accordance with the desire expressed by Government for the improvement of Calcutta Madrassah in order that it might meet more fully the needs of the community a new course of studies has been prepared and submitted to the Director for consideration. The effect of this will be to add one year to the senior certificate course and thereby at once to make the syllabus of studies more closely approximate to the orthodox and traditional, and to make the senior certificate course of Calcutta Madrassah superior to that of the Punjab Maulvi Fazil.

HUSSAIN, Shams-ul-Ulama VILAYAT.

The Arabic Department of the Calcutta Madrassah was founded by Government for the purpose of educating Muhammadan students of Bengal and fitting them for Government service. So long as the court language was Persian they discharged their duties creditably. But when Persian was abolished and English became the court language, no change in the system of teaching was made in the Madrassah which was the only institution for Muhammadans in the whole of Bengal. And as the Muhammadans did not take up English education they remained far behind the other communities in the race of life. Though changes were made in the courses no worldly benefits could result from them to students as no satisfactory provision for English education was made for them.

Now, I suggest that the courses of studies in the Arabic Department should be made more up-to date and that they should be taught English to such an extent as would enable them to conduct work in that language. Provision should accordingly be made in the Calcutta University so that they may be examined there in the courses of study and after passing their examination they may be given some diploma and title, and the various branches of Government services should be opened to them.

ISLAM, Khan Bahdur AMINUL.

In this note I do not propose to confine my remarks to the syllabus of Calcutta Madrassah alone, but will deal with the question of Madrassah education in general. It is an accepted principle that Muhammadan secular and religious education must go hand in hand : one is inseparable from the other. It was with this object in view that Government was pleased to introduce the reformed Madrassah scheme which is a compromise between the present Madrassah and school education, the object being to meet the special requirements of those members of the Muhammadan community who are not satisfied with the purely secular education now imparted in schools nor with the purely religious education given in the Madrassah. Experience has shown that this experiment has not met with success. The education given in a reformed madrassah does not fit them for the ordinary vocations of life nor give them sufficient knowledge of Islamic laws to make them useful as religious guides. A system of education must be evolved which should ensure that the rising generation receive in youth a sound and healthy training and be improved morally and intellectually, so that they may become useful members of society.

I would now proceed to the discussion of the question as to the subjects which should be taught in madrassahs. It will be noticed that Bengali has been omitted from the course proposed by the Head Maulvi, Calcutta Madrassah, and that Persian has been excluded from the curriculum of the reformed madrassahs and of the Dacca University. It is obvious that a Bengal Muhammadan must study his own vernacular, Bengali, which is also the court and business language of the province. It is, however, not necessary to turn the students into Bengali scholars, but to impart sufficient instruction in the Bengali language so as to equip them with a practical acquaintance of the vernacular for every day purposes. We venture to think that it would be sufficient to put in Bengali as the principal subject in a three years' *maktab* course and to retain Bengali composition in the madrassah course to keep up uniformity with the high school curriculum.

The other question which arises is whether Persian should be included in the madrassah course or it can be safely excluded. The reason for excluding it is that multiplicity of languages should be avoided in the ultimate interest of the students and relieve them from an intellectual burden which the study of Persian would involve ; but on the other hand the utility of Persian as a spoken language in Asia ; the existence of the largest number of works on *Sufism* in the said language and its position as one of the world's great classics mark it out as an Islamic subject of great importance. In its practical aspect every demand for a professor of Arabic contemplates a professor of Persian ; and the product of the Madrassah is necessarily expected to be an Arabic and Persian scholar. Further the old Nizamia course included a study of Persian in addition to Arabic which furnishes a distinct admission of the value of Persian.

The next question is what would be the position of Urdu in the madrassah and *maktab* curricula. There is perhaps some difference of opinion as to the advisability of introducing Urdu, but as the Quran is in the Arabic script, which is nearly the same as the Urdu script, and as most of the elementary books on religion and morals are in the Urdu language the teaching of a few elementary primers in Urdu in the *maktab* course appears to be eminently desirable. Besides it will appear from the Dacca University scheme that Urdu has been made compulsory in addition to the vernacular in the first four classes of the madrassah course. Urdu is the most convenient medium of instruction for the teaching of Arabic and Persian, and hence a grounding in Urdu would greatly facilitate the subsequent development of those classics.

Below is a summary of the recommendations for a model madrassah scheme, having in view the aims and objects expressed in the beginning of this note :—

(*a*) A *maktab* course (three years) ; Bengali, Quran, moral lessons and religious instructions in Urdu, arithmetic and drills.

Note.—At the end of this course a student may either join a middle English school or go to a junior madrassah.

(*b*) A junior madrassah course—six years. The curriculum to be the same as the present reformed Madrassah course with the modification that English and

ISLAM, Khan Bahadur AMINUL—*contd.*

Persian be taught as compulsory subjects and Bengali composition to be included as an additional subject. Geometry, algebra, history and geography should also be included in this course. At the end of this course a student may either study for the matriculation examination or go to a senior madrassah.

(*c*) The senior madrassah course—four years. The subjects in this course would be as follows :—

(i) Arabic language and literature.
(ii) Jurisprudence.
(iii) Principles of jurisprudence.
(iv) Laws of inheritance.
(v) Commentaries on the Quran.
(vi) Traditions of the Prophet.
(vii) Aqaid.
(viii) Logic, etc., etc.

English or Persian may be taken up as an optional subject.

(*d*) Advanced or post-graduate course—two years.

Group I.—Philosophy, logic and theology.
Group II.—Arabic language and literature.
Group III.—Commentaries of the Quran and traditions of the Prophet.

After passing in one group, a student may sit for an examination in another group after one year.

This post-graduate course will appeal to distinct types of students and will remove the present opposition to the reformed madrassah scheme. It will also enable poor students who are unable to go to the Dacca University to obtain a fairly complete education in Arabic and qualify themselves to be leaders in religion.

It would perhaps not be practicable to open post-graduate classes in every madrassah on account of the dearth of qualified professors and for want of funds, but it would be possible and sufficient to open the classes in three of the leading reformed madrassahs in Bengal and to develope the system gradually in accordance with the demand for it. We would like to see the post-graduate side of the Calcutta Madrassah developed on lines similar to the Darul-Ulum at Deuband where learned savants freed from care and anxiety by substantial honoraria would meet their students on a more personal footing and add to their academic discourses the spirit of their own piety.

I would make the following additional sugestions:—

(1) All madrassahs should be put under a governing body in which there should be at least one ex-student.
(2) The selection of text-books according to the views set forth in the note may be entrusted to an expert committee in which learned men, like Maulana Abu Bakar, Abdul Awal and others and some practical men, should be represented.
(3) Students who have passed the madrassah final examination may be allowed to have votes in municipalities, local boards, district boards and legislative councils if otherwise qualified.
(4) There should be special free hostel accommodation for Arabic students.
(5) Students who pass the madrassah final examination with English as an optional subject should be allowed to appear at the mukhtearship and pleadership examinations and to read in the Campbell School, Sibpur College, Agricultural College, etc.
(6) Government have no doubt ruled that persons holding a madrassah final examination diploma and having a working knowledge of English are eligible for appointments as sub-registrars, but in practice preference is always given to students who have passed the intermediate examination. A certain number of appointments should be reserved for madrassah passed men.
(7) Research scholarships may be open to Arabic students.
(8) In appointing professors of colleges under Calcutta University and teachers of madrassahs preference should be given to qualified Bengal Muhammadans who have passed through the madrassah course with English.

ISLAM, Khan Bahadur AMINUL—*contd.*

(9) Only madrassah passed men should be appointed Qazis.

MAKTAB COURSE.

	Periods hours.
First year—	
(1) Qaida Baghdadi and Urdu Ka Quida	12
(2) Bengali—first Reader and second Reader	6
(3) Arithmetic	6
(4) Drills and country games	2
	26
Second year—	
(1) Ampara, and five books of Quran	6
(2) Urdu ki Pahli Kitab and Diniat ki Pahli Risala and Urdu-writing	6
(3) Bengali—third book, and Bengali-writing	6
(4) Arithmetic	6
(5) Drill	2
	26
Third year—	
(1) Whole Quran	6
(2) Urdu ki Dusri Kitab and Diniat ki Dusra Risala and Urdu-writing	6
(3) Bengali *maktab* readers and Bengali-writing	6
(4) Arithmetic	6
(5) Drill	2
	26

The secondary or junior madrassah course would run as follows :—

First year—	
Arabic . { Elementary sarf and nah in Urdu / Egyptian, Arabic Reader, Part I }	12
Bengali	2
English	4
Arithmetic	6
Persian	6
History in Urdu	4
	34
Second year—	
Arabic— { Kitab-us-Sarf in Urdu / Kitabun-Nah in Urdu / Egyptian Reader, Part II }	14
Bengali	1
Geography	3
English	6
Persian	4
Arithmetic	6
	34
Third year—	
Arabic { (I) Egyptian Grammar in Arabic / (II) Egyptian Reader, Part III / (III) Translation and conversation }	14
Persian—including translation and conversation	4
Bengali	1
Geography	3
English	6
Arithmetic	6
	34

ISLAM, Khan Bahadur AMINUL—*contd.*

	Periods hours.
Fourth year—	
Arabic . { Kafiya (first half) / Egyptian Reader, Part IV / Translation and conversation / Munyatul Mussali }	15
Persian, including translation and conversation	4
Bengali	1
Geography	2
English	6
Arithmetic	6
	34
Fifth year—	
Arabic . { Kafiya (whole) / Arabic Reader V / Translation and conversation / Durrutul Abbasiya }	15
Persian, including translation and conversation	4
Bengali	1
Hygeine	2
English	6
Arithmetic—Euclid—Algebra	6
	34
Sixth year—	
Arabic . { Shahrah Jami / Arabic Reader VI / Translation and conversation / Qusidu Bad-ul-Amali }	15
Persian, including translation and conversation	4
Bengali	1
Hygeine	2
English	6
Arithmetic—Euclid—Algebra	6
	34

THE SENIOR MADRASSAH OR COLLEGE COURSE.

First year.

1. Language and literature.
2. Fiqh—Sharh Viqaya.
3. Usul Fiqah Nurul Anwar.
4. Faraiz—Sirajia.
5. Logic—Sharh Tahzib.
6. History in Arabic.
7. Arabic Translation and composition.
8. (Optional)—English or additional Arabic or Persian.

Second year.

1. Arabic language and literature.
2. Fiqh—2nd volume of Sharh Viqaya.
3. Usul Fiqh—Nurul Anwar.
4. Logic Qutbi.
5. History in Arabic.
6. Arabic composition and translation.
7. Optional—English or additional Arabic or Persian.

Third year.

1. Arabic language and literature.
2. Fiqh—Hidaya—Volume III.
3. Tauzih (Usul Fiqh).
4. Logic—Sullam (Tasawwarat).
5. Tafsir—Jalalain (first half).
6. Hidayat-ul Hikmat (first half).
7. Arabic composition and translation.
8. Aqaid Nasafi (first half).
9. Optional—English or additional Arabic or Persian.

ISLAM, Khan Bahadur AMINUL—*contd.*—KARIM, Maulvi ABDUL.

Fourth year.

1. Arabic language and literature.
2. Fiqh Hidaya IV.
3. Tauzih.
4. Logic—Sullam (Tasdiqat).
5. Tafsir—Jalalain.
6. Hidayat-ul Hikmat (second half).
7. Arabic composition and translation.
8. Aquaid Nasafe (second half).
9. Optional—English or additional Arabic or Persian.

MADRASSAH* FINAL EXAMINATION. POST-GRADUATE COURSE BOOKS RECOMMENDED.

Group I.—Philosophy, logic and theology. Books recommended.

1. Sadra.
2. Shams Bazigha.
3. Mulla Husan.
4. Hamdulla.
5. Qazi Mubarak.
6. Mir Zahid Risala Quibiya.
7. Mir Zahid Umur Amna.
8. Sharah Mawaqif.
9. Mir Zahid Mulla Jalal.

Group II.—Language and literature. Books recommended.

1. Kitabul Aghani.
2. Yatimat-ul-Duhar, etc., etc.
3. Philology and history of Literature

Group III.

Hadis and Tafsir.
Sihah Sitta.
Tafsir Baizavi.
Nukhbatul Fikr.

N.B.—This is a two years' course ; after passing in one group, a student may be allowed to pass in another group next year.

KARIM, Maulvi ABDUL.

During the Muhammadan rule in Bengal there were madrassahs all over the country. Besides the well-organised institutions of the kind every mosque was a madrassah in miniature. Distinguished Arabic scholars, who devoted their lives to advancing Islamic learning, taught their co-religionists, without any remuneration from their pupils, theology, law and literature of Islam. Many of these institutions collapsed when the Musalmans lost their wealth and influence on account of the loss of sovereignty. As in the beginning of British rule in India Persian was retained as the court language, it was necessary to have an institution, well-equipped and well-staffed, for the training of officers. Warren Hastings established the Calcutta Madrassah in order to meet this requirement. Its course of studies was so framed as to give Government servants a good training. Some of the private madrassahs also adopted this course. As long as a knowledge of Persian was a passport to posts of honour and emoluments the education given in the madrassahs was very useful. When Persian was replaced by English and the provincial vernaculars, the madrassahs lost their utility and consequently also lost their popularity. But still a large number of orthodox Musalmans, who cared more for religious than for secular education, continued to send their children to the madrassahs instead of to the schools and colleges. As, however, their course of studies was not revised in view of modern ideas and present conditions, the madrassah students, as at present educated, are not qualified for any useful career in life, and many of them have to be a burden upon the community. In order to remedy this unsatisfactory state of things, the course of oriental studies has lately been revised and proposals for further

* This examination should be recognised by the University and diplomas should be given by it.

KARIM, Maulvi ABDUL—*contd.*—Musalmans of Bengal.

revision are under consideration. But, unless the madrassah students acquire a fair knowledge of English, they can neither properly earn their livelihood nor make themselves much useful to society. The question of the English education of Arabic scholars, therefore, demands careful consideration. It is a matter in which the Musalmans are vitally interested. For the community cannot be influenced for good or for evil to such an extent by anybody else as it can be by the *ulamas*. It is through them that the great majority of the people can be reached. It is, therefore, essentially necessary in the interests of the community as well as of the Government that the madrassah students should be given such an education as would make them intelligent and enlightened citizens.

2. Steps were taken from time to time with a view to induce the madrassah students to learn English. But these did not produce the desired effect, because those who learnt English did not derive any appreciable benefit. Although better educated than the matriculates and even the under-graduates, their claims to posts under Government were not recognised. Unless some inducements are offered by the conference of special privileges, madrassah students will not learn English to the desired extent. It is most desirable that the Calcutta University should do what the Punjab University has been doing in this respect. The Punjab University has been utilising the different intellectual abilities and activities in the province. It has established oriental faculties and has recognised the Arabic madrassahs and the Sanskrit *tols* as educational institutions under it. On their passing certain examinations in Arabic and Sanskrit, the oriental students are permitted to sit for examination in the English papers of the Matriculation, intermediate and B.A. examinations, and on their obtaining pass marks they are declared to have passed these examinations. Thus without studying subjects other than English prescribed by the University and without attending lectures in colleges, the oriental students in the Punjab obtain the matriculation and the I.A. certificates and even the B.A. degree.

3. The University of Calcutta should establish faculties of oriental studies like those of the Punjab University. The Arabic department of the Calcutta Madrasah, the course of studies of which is in no way inferior to that of the oriental faculties in Persian and Arabic of the Punjab University, should be recognised by the Calcutta University and its examinations should be held either by the University or, as at present, by a madrassah board. There is no reason why fifteen years' study of different subjects in the madrassah should not be regarded as of equal value in point of intellectual culture and moral discipline to the study in a university. It has to be borne in mind that in Islamic countries the education that makes great statesmen and administrators is similar to that imparted in the madrassahs in this country. Taking all these circumstances into consideration, I would suggest that the madrassah students on passing the junior and senior examinations be examined by the Calcutta University only in English up to the B.A. standard and, on their obtaining pass marks, be declared to have passed the university examination, the English paper of which is answered by them. Besides the recognition of the Arabic madrassahs, the University may utilise the university classes in Arabic and Persian for this purpose, provided erudite scholars, who may devote all their time and energy to study and research in the Islamic classics, are appointed lecturers. It is not desirable that those who follow other professions, which engage most of their time and attention and who are not reputed oriental scholars, should be appointed university lecturers.

Musalmans of Bengal.

We, the undersigned, have the honour most respectfully to represent that the Calcutta Madrassah was originally established with a view to afford a course of training to Muhammadan youths in Persian and Arabic literature and Muhammadan law, so that they might be profitably employed in service under Government; while, with the same purpose in view, the Sanskrit College was founded for the training of Hindu boys. So long as Persian remained the language of the court, scholars educated in the Calcutta Madrassah

Musalmans of Bengal—*contd.*

continued to be admitted into every branch of public service, often securing higher appointments, as those of munsiffs and sadar also, while they were also not inadequately represented at the Bar; and many of them rose to high eminence by the faithful discharge of their duties and unswerving loyalty to Government.

But later on, when, as a matter of course, English, superseding Persian, became the language of the court, the Hindus, to whom Persian was of no more value than as a means to worldly emoluments, having been for long habituated in learning the language of foreign rulers, easily drifted into the study of English, and the Sanskrit College gradually rose to its present status. On the other hand, the Muhammadans, having been so suddenly thrown out of Government patronage, were taken aback and could not give up the study of a language so vitally connected with their social and religious life; and consequently the Arabic Department, Calcutta Madrassah, continued to be run on the old lines with the result that it lost much of its former utility. Scholars passing from it no longer enjoy the good fortune of being employed in Government service, not to speak of a few marriage registrarships of Persian and Arabic teacherships in high English schools, for which also a knowledge of English has now become necessary. Under the circumstances they have been reduced to the necessity of either turning religious hawkers, living mainly on the charities of others, or becoming *imams* and *muezzins* attached to some mosques at starving wages.

A knowledge of English having become essential for Government service, attempts were made from time to time to introduce the study of English into the Arabic Department, Calcutta Madrassah, but they met with but indifferent success, till Sir Archdale Earle, now the Chief Commissioner of Assam, became the Director of Public Instruction, Bengal. His alert and sympathetic mind was at once directed towards the improvement of madrassah education in Bengal, and an official conference of representative Muhammadans from every part of Bengal and Bihar was convened under his presidentship. The result was that the syllabus of studies at present current in the Arabic Department, Calcutta Madrassah, was drawn up, introducing English as an alternative subject to Persian from the junior fourth year class to the senior fifth year class, a period of eight years' study equivalent to the matriculation standard of a university. Considering the fact, that up to the stage of the senior fifth year class, these students would have undergone a course of studies in Arabic, which in point of mental culture and moral discipline is in no way inferior to that of a modern university, but owing to its religious basis will surely prove much more effective, they were not required to undergo the trouble of a lengthy and expensive university education in order to fit themselves for higher appointments under Government, but it was decided that they should be provided with a special training only in English literature for two years more, either after the higher standard examination or the final title examination so that students, who would pass in the special English examination after the two years' special course in English should be deemed as equivalent to university graduates and be eligible for the same privileges from Government.

This scheme, we regret to find, has not been fully worked out, inasmuch as the special two years' course for the study of English has not yet been opened, thus compelling many of the students passing the higher standard examination with English to close their English studies at this incomplete stage, only very few being able to afford the expenses and trouble of continuing their English studies in high English schools or colleges for at least six or seven years more. It is, however, hopeful to observe that in spite of this drawback, more than one-third of the students now reading in the Arabic Department, Calcutta Madrassah, have voluntarily taken up English in preference to Persian; and we cannot but feel that the time has now come for the University of Calcutta to take these students under its protecting fold, as its sister university in the Punjab has already done to its students of oriental literature and learning. The latter university has established oriental examinations in Persian, Arabic or Sanskrit, namely, Munshi Alim and Munshi Fazil in Persian, Maulvi Alim and Maulvi Fazil in Arabic, and Visharad and Shastri in Sanskrit; and permits the students, who have passed the highest examination either in Persian or Arabic or Sanskrit, to present themselves for examination in the English papers of the matriculation, intermediate, and B.A. examinations of its arts faculty successively; so that any of such oriental students obtaining pass marks only in English at the bachelor of arts examination is deemed to have passed the said examination

and is admitted to the degree of bachelor of arts in that university. The syllabus of studies at present current in the Calcutta Madrassah up to the stage of the senior fifth year class is practically the same as that of the Maulvi Fazil of the Punjab University, while the curriculum for its title course is much superior to that; and it would not be out of place to ask for such privileges for the Arabic students in Bengal.

It is desirable to mention here that recently the Government of Bengal has formulated a reformed course for the madrassahs of Bengal under the Dacca University scheme and has decided to enforce it in all the madrassahs in Bengal except the Calcutta madrassah which should be run on the orthodox and traditional lines in order to meet with the social and religious needs of our community. We, the Muhammadans in Bengal, are too closely bound up with our religion, and there is still a strong demand for studies on the old and traditional lines with or without a good working knowledge of English which may be a passport to Government service. Therefore it is very desirable that facilities should be afforded to the students of madrassahs, teaching the orthodox course, when they evince an eager desire to learn the language of their rulers as a means to worldly emoluments, because thereby Government would be able to foster around it a band of loyal servants and faithful subjects who by their religious training would surely be much more devoted to Government than the votaries of a materialistic secular education.

Under the circumstances, we most fervently beg leave to submit this our humble representation before the members of the Calcutta University Commission, so that they might be in a position to give our prayer their generous consideration, for which act of kindness, the Muhammadans of Bengal in general shall remain for ever grateful.

SIRAJUL ISLAM,
(*Nawab*).

Z. R. ZAHID SUHRAWARDY.

A. F. ABDUL RAHMAN.

ABDUL KARIM.

MUHAMMAD IBRAHIM,
(*Khan Bahadur*).

AMINUL ISLAM,
(*Khan Bahadur*).

ABUL KASEM.

M. ATAUL HUQUE.

M. A. MUNIM,
(*Khan Bahadur*).

M. A. HAFEEZ.

M. SULTAN ALUM,
(*Sahebzadah*).

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD.

The Calcutta Madrassah was originally established with a view to afford a course of training to Muhammadan youths in Persian and Arabic literature and Muhammadan law, so that they might be profitably employed in services under Government; while with the same purpose in view the Sanskrit College was founded for the training of

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD—*contd.*

Hindu boys. So long as Persian remained the language of the court, scholars educated in the Calcutta Madrassah continued to be admitted into every branch of public service, often securing higher appointments as those of munsiffs and sadar also, while they were also adequately represented in the Bar; and many of them rose to eminence by faithful discharge of their duties and unswerving loyalty to Government.

2. But later on, when as a matter of course, superseding Persian, English became the language of the court, the Hindus to whom Persian was of no more importance than a means to worldly emoluments, having been for long habituated in learning the language of foreign rulers, easily drifted into the study of English, and the Sanskrit College gradually rose to its present status. On the other hand, the Muhammadans, having been so suddenly thrown out of Government patronage, were taken aback and could not give up the study of languages so vitally connected with their social and religious life; and consequently the Arabic Department, of the Calcutta Madrassah, continued to be run on the old lines with the result that it lost much of its former utility. Scholars passing from it no longer enjoy the good fortune of being employed in Government service, not to speak of a few marriage registrarships or Persian and Arabic teacherships in high English Schools, for which also a knowledge of English has now become necessary. Under the circumstances they have left nothing but to turn religious hawkers, living mainly on the charities of others, or to become priests in mosques at starving wages.

3. A knowledge of English having become essential for Government service, attempts were made from time to time to introduce the study of English in the Arabic Department, of the Calcutta Madrassah; but they met with but indifferent success, till Sir Archdale Earle, now the Chief Commissioner of Assam, became the Director of Public Instruction, Bengal. His alert and sympathetic mind was directed towards the improvement of madrassah education in Bengal and an official conference of representative Muhammadans from every part of Bengal and Bihar was convened under his presidentship. The result was that the syllabus of studies at present current in the Arabic Department, of the Calcutta Madrassah, was drawn up, introducing English as an optional as well as alternative subject to Persian from the junior fourth-year class to the senior fifth-year, a period of eight years' study almost equivalent to the matriculation standard of a university. Considering the fact that, up to the stage of the senior fifth-year class, these students would have undergone a course of studies in Arabic which in point of mental culture and moral discipline is in no way inferior to that of a modern university, but owing to its religious basis is expected to be much more effective, they were not required to undergo the trouble of a lengthy and expensive university education in order to fit themselves for higher appointments under Government, but it was decided that they should be provided with a special training only in English literature for two years more, either after the higher standard or the final title examination, so that students who would pass in the special English examination after the two years' special course in English, should be deemed as equivalent to university graduates and be eligible for the same privileges from Government.

4. It is to be regretted that although a sufficient number of students from this institution as well as from the Hooghly Madrassah, where Sir Archdale's scheme was enforced, has been annually passing the higher standard examination with English, the special English class, which would have afforded so great a facility, has not been opened yet, thus compelling many of these students to close their English studies at this incomplete stage, only a few being able to afford the expenses and trouble of continuing their English studies in high English schools and colleges for at least six or seven years more. As far as I can judge from the attitude of the students, the establishment of this special class for the study of English would have much more popularised the study of English among the students of the Arabic Department, inasmuch as in spite of this drawback the number of the English reading students has ever since been on the increase, the total number at present being no less than 191 out of a maximum of 545 on the rolls.

5. During the time that I have been in the Calcutta Madrassah, I have been firmly convinced, from my contact both with the students and the Muhammadan public, that among the Muhammadans of Bengal there is still a great demand for Arabic studies on the traditional lines coupled with a good working knowledge of English; and while preparing

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD—*contd.*

my scheme for the improvement of the Calcutta Madrassah, which is now under the consideration of the authorities, whenever I had occasion to consult public gentlemen, I was repeatedly asked to formulate such a course of studies as might improve the Arabic side and at the same time afford facility to the study of English literature. Accordingly I have tried to raise the Arabic syllabus to the highest efficiency that can be found in any of the seats of Arabic learning throughout India, and at the same time have provided for a twelve years' course of studies in English which is expected to be at least equivalent to the matriculation standard of a university. As it is evident from the attitude of Government that it does not favour the scheme of the two years' special course in English, the students must have recourse to university education for further studies in English. But, after a complete course of studies in Arabic in this institution for fifteen or fourteen years, either as at present provided or as contemplated in my scheme, it can hardly be expected that the majority of the students will have left sufficient energy and means to undergo university education in its full course for at least six or seven years more. This is a difficulty, which can only be solved in the way in which it has already been done in the Punjab University. The said university has established oriental faculties in Persian, Arabic or Sanskrit, and permits the students of its various oriental faculties to present themselves for examination in the English papers of the matriculation, intermediate, and B.A. examinations of its arts faculty, successively so that any of such oriental students obtaining pass marks only in English at the bachelor of arts examination is deemed to have passed the said examination and is admitted to the degree of bachelor of arts in that university From my connection with the Punjab University for over thirty years, I am in a position to testify to the splendid results of this scheme, and I cannot but wonder why such a scheme has not been yet formulated in Bengal where there is such a strong demand for oriental studies on the old lines coupled with a good working knowledge of English.

6. Under the above circumstances I beg to submit the following proposals for the kind consideration of the members of the Calcutta University Commission :—

(*a*) That the University of Calcutta may be pleased to take the Arabic Department of the Calcutta Madrassah, under its protection and patronage, and establish faculties of oriental learning in Persian and Arabic on the lines prescribed for this institution, the syllabus of which even in its present condition is superior to that of the oriental faculties of Persian or Arabic as provided in the Punjab University.

(*b*) And that the students of the oriental faculties in Persian and Arabic as studied in the Calcutta Madrassah may be permitted to present themselves for examination in the English papers of the matriculation, intermediate and B.A. examinations in the arts faculty of the Calcutta University, successively and in case of securing pass marks only in English may be deemed to have passed in the particular examination to which they might have presented themselves.

7. I beg to forward herewith a copy of the present syllabus of studies for the Arabic Department, Calcutta Madrassah, as well as that of my scheme for its improvement for your kind perusal.

8. In conclusion, I fervently hope that my humble proposals will receive your kindest consideration and the boon prayed for may be granted, thus conferring a lasting benefit to the Muhammadans of Bengal, who by their unswerving loyalty and faithfulness to the Government have always deserved this consideration.

APPENDIX.

Revised regulations for the central examination of the Bengal madrassahs under the new scheme.

Examinations in Arabic and Persian literature, and Muhammadan law, etc., for the students of the first year to the fifth year classes of the senior (or college) section of the Bengal madrassahs, named in Schedule I, shall be held annually by the Central Board

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of Examiners, Bengal Madrassahs. Persian shall be optional for those who will take up English as a subject for examination. The Principal and the Head Maulvi of the Calcutta Madrassah shall be Registrar and Assistant Registrar, respectively, of the Board. The examiners shall be selected by the Registrar for each year's examinations, subject to the confirmation of the Director of Public Instruction, Bengal.

2. The examinations shall be held at Calcutta, Hooghly, Sasaram, and such other places as may be hereinafter appointed, in the month of April, the exact date of the commencement of the examination being annually fixed and published by the Registrar with the sanction of the Director of Public Instruction, Bengal.

The examinations held for the senior third year and fifth year classes shall, respectively, be named the lower and the higher madrassah standards.

The heads of the Government madrassahs and affiliated madrassahs in Bengal shall submit to the Registrar lists of candidates to be examined at least forty-five days before the commencement of the examination, accompanied by the proper fees and a statement showing the place at, and the examination to, which the candidates are to be admitted. A candidate who fails to pass or to present himself for examination shall not be entitled to claim a refund of the fee; but he may be admitted to one or more subsequent examinations on payment of the full fee on each occasion.

3. The following fees shall be levied :—

Rupees 7 for admission to the examination of the senior fifth year class, or the higher madrassah standard.

Rupees 5 for admission to the examination of the senior fourth year class.

Rupees 5 for admission to the examination of the senior third year class, or the lower madrassah standard.

Rupees 3 for admission to the examination of the senior second year class.

Rupees 2 for admission to the examination of the senior first year class.

4. The examination shall be conducted by means of written papers, the same questions being set in every place where the examination is held.

The examination of the senior first year class shall be held for five days, that of the senior second year class for six days, those of the senior third and fifth year classes for seven days, and that of the senior fourth year class for eight days, two papers of questions being set for each day of examination except on the last day. Three hours' time shall be allowed for each of the papers set in the forenoon as well as those set in the afternoon.

For the purpose of calculating pass marks, the papers shall be arranged in the groups of papers. The subjects and marks of the papers, and the arrangement of the several groups of papers, shall be as shown in Schedule III.

5. In order to pass any examination a candidate shall be required to obtain not less than 25 per cent. of the total number of marks in each group of compulsory papers, and to secure an aggregate of not less than 33 per cent. of the maximum total of marks. In order to pass in the optional subject, the marks for which shall not be counted towards the aggregate, a candidate shall be required to obtain not less than 25 per cent. of the total number of marks in that subject.

In case a student takes up either English or Persian, the marks secured by him in that particular subject shall be counted towards the aggregate; but in case a student takes up both English and Persian the marks secured by him in English shall be counted towards the aggregate as those of a compulsory subject, while the marks secured by him in Persian shall be kept separate as those of an optional subject.

Passed candidates securing not less than 50 per cent. of the maximum total of marks shall be placed in the first division; those securing not less than 42 per cent. in the second division; and the rest in the third division.

6. After the close of the summer vacation the Registrar shall send a list of candidates who have passed, arranged in order of merit, separately for each Madrassah, to the Director of Public Instruction, Bengal, for sanction and publication in the *Calcutta Gazette*. The heads of the several madrassahs shall be supplied at the same time with a list of successful candidates of their respective institutions.

7. The fact of a candidate's having taken up English as a compulsory subject or Persian as an optional one shall be mentioned in his pass certificate.

8. The revised courses of reading prescribed for the five senior classes are shown in Schedule II.

SCHEDULE I.

Institutions in Bengal authorised to send up candidates for the examinations of the Bengal Madrassah are—

Calcutta Madrassah.
Hooghly Madrassah.
Sasaram Madrassah.

SCHEDULE II.

Revised syllabus of studies for the senior (or college) classes.

FIRST YEAR CLASS.

Arithmetic in Urdu.—G.C.M. and L.C.M.; vulgar fractions; unitary method; theory of decimals (both terminating and recurring); practice; simple and double rule of three, measurements; square and cubic measure, *e.g.*, carpeting, painting, paths, etc. *Mankasha, sherkasha, bighakali.*

Arabic—

Grammar.—Kafiyah (from beginning to the end of Atful Bayan). Shafiyah (from beginning to the end of Bahs-i-haruf-i-Ziyadat).

Literature.—Almuntakhabat-ul-Arabiya (whole) and Nafhat-ul-Yaman (Chapter I).

Composition.—Reproduction of passages from the books which the students have read.

Translation.—Of passages in such a book as the Anjuman-i-Hemayat-ul-Islam's Urdu Primer.

Fiqh (*Muhammadan law*).—Muniyat-ul-Musalli (whole) for Sunni students. Najat-ul-ibad (Tahrat, Salat, and Sawm) for Shiah students.

Persian—

Literature.—Sarmaya-i-Khirad (excluding selections from Shahnamah and Akhlaq-i-Jalali).

Composition.—More difficult essays on topics similar to those prescribed for the essay-writing of the sixth year junior (or school) class, *viz.*, incidents of the class-room, the play ground, the street and the bazar.

English.— A reader for middle classes in Bengal (Anglo-Urdu), by E. Marsden and M. M. Bose (Lessons 63 to 114, inclusive). Junior translation, by B. M. Ganguli.

N.B.—Persian will be optional for students who take up English.

SECOND YEAR CLASS.

Geometry in Urdu.—Propositions I to XXXII of Euclid, Book I.

Arabic—

Grammar.—Kafiyah (from Bahs-i-Mabni to the end). Shafiyah (from Bahs-i-Imal to the end).

Literature.—Mustatraf, Volume I (Chapters I, II, III, IV, V, IX, X, XI and XII).

Translation.—From Urdu into Arabic.

Composition.—Reproduction of more difficult passages from the book which the students have read.

Fiqh (*Muhammadan law*).—Sharh-i-Waqayah, Volume I (whole), and Sirajiyah (from beginning down to zawilarham) for Sunni students. Sharaya-ul-Islam (first half) for Shiah students.

Usul Muhammadan jurisprudence.—Nurul-anwar—up to Ijma (whole) for Sunni students. Maalin-ul-usul (whole) for Shiah students.

Logic.—Mizan Mantiq (whole).

Persian—

Literature.—Diwan-i-Hafiz (from beginning to the end of Radif-i-Ta) Akhlaq-i-Nasiri (from Maqala-i-awwal to the end of Fasl-i-Panjum of Qism-i-Sani, pages 16 to 110, Calcutta Edition, 1269 A. H.).

Composition.—Essay-writing; the subjects to be historical or biographical.

English.—Æsop's Fables, by Cassel & Co. The School Reader, by M. A. Haq. Elementary English Grammar, by Rowe and Webb. Junior Translation, by B. M. Ganguli. Composition, by McMordie.

***N.B.*—Persian will be optional for students who take up English.**

THIRD YEAR CLASS.

Geometry in Urdu.—Propositions XXXIII to XLVIII (Book I) and Book II of Euclid.

Arabic—

Grammar.—Mufassal of Zamakhshari (from beginning to the end of Bahs-i-ism)

Literature.—Hamash-Babul-adabwan-Nasib. Muqaddamah-i-Ibn Khaldun (Fasl I.) Tafsir-i-Jalayan (the first one-third portion).

Translation.—From Urdu into Arabic.

Composition.—Essay-writing.

Fiqh (*Muhammadan law*).—Sharh-i-Waqayah, Volume II (Chapters on Nikah, Riza, Talaq, Aiman, Laqit, Luqta, Mafqud, Shirkat and Waqf) for Sunni students. Sharaya-ul-Islam (second half) for Shiah students.

Usul (*Muhammadan jurisprudence*).—Tawzih (Chapter I) for Sunni students. Talkhis (first half) for Shiah students.

Logic.—Sharh-i-Tahzib (whole) and Qutbi (Tasawwurat).

Rhetoric.—Mukhtasar-ul-Ma'ani (from the beginning to the end of Ahwal-i-musnud).

Persian—

Literature.—Habibus-Siyar (from the beginning to the end of the history of David). Mantiqut-Tair (from the beginning to the end of the story of the Shaikh of Bosrah's visiting Rabiya).

Composition.—Essay-writing.

English.—Boy's Odyssey, by W. Capland and Perry. Grimms' Popular Stories. Children's Treasury, Part I, by Palgrave (select pieces). Elementary English Grammar by Rowe and Webb. A Manual of Translation, by B. M. Ganguli. Composition, by McMordie.

***N.B.*—Persian will be optional for students who take up English.**

FOURTH YEAR CLASS.

Geometry in Urdu.—Book III of Euclid.

Arabic—

Grammar.—Mufassal of Zamakhshari (from the beginning of Bahs-i-Fil to the end).

Literature.—Diwan-i-Mutanabbi (to the end of letter *ba*). Tafsir-Jalalayn (the second one-third portion).

Translation.—From Urdu into Arabic.

Composition.—Essay-writing.

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Fiqh (*Muhammadan law*).—Hidayah, Volume III (Chapters on Bay', Sarf, Iqrar Ijara, and Hibah, for Sunni students). Sharh-i-Luman (Ibadat) for Shiah students.

Usul (*Muhammadan jurisprudence*).—Tawzih (from the beginning of Chapter II to the end of Rukn-i-Sani) for Sunni students. Qawanin (the first one-third portion) for Shiah students.

Logic.—Qutbi (Tasdiqat) and Sullam (Tasawwurat).

Rhetoric.—Mukhtasar-ul-Maani from Ahwl-i-Muta' allaqat-ul-Fi'l to the end of Wajh-i-Tashbih.

Aqaid (*Theology*).—Sharh-i-Aqaid-i-Nasafi (first half) for Sunni students. Sharh-i-Bab-i-Hadi Ashar (whole) for Shiah students.

Philosophy.—Hidayat-ul-Hikmat (Tabiyat)—Addurus-ul-Awwaliyah (first half).

Persian—

Literature.—Tarikh-i-Wassaf (from the beginning of Volume II to the death of Salghur Shah, pages 144 to 169). Hadiqah-i-Sanai (from the beginning to the end of the chapter on the conditions of the five prayers, 1 to 130, Newal Kishore Edition). Qasaid-i-Qaani (to the end of *Radif Ba*).

Composition.—Essay-writing.

English.—Heroes by Kingsley. Sketch Book (Rip Van Winkle and the Legend of the Sleepy Hollow), by Washington Irving. English Poems, by Jennings. English Grammar, Book IV, by Nesfield. A Manual of Translation, by B. M. Ganguli.

***N.B.*—Persian will be optional for students who take up English.**

FIFTH YEAR CLASS.

Geometry in Urdu.—Book IV of Euclid.

Arabic—

Literature.—Muallaqat (I to IV, inclusive) for all students. Maqamat-i-Hariri (I to V, inclusive) for all students. Mishkat-ul-Masabih (from the beginning to the end of the chapter on Qunut, pages 1 to 114, As-hul-Matabe, Lucknow, 1326 A.H.) for Sunni students. Manlayahzar-ul-Faqih (1rst half) for Shiah students.

Translation.—From Urdu into Arabic.

Composition.—Essay-writing.

Fiqh (*Muhammadan law*).—Hidayah, Volume IV (Chapters on Shufa, Zabayeh, Uzhiyah, Karahiyat, Ashriba, Rehn, and Wasaya) for Sunni students. Sharh-i-Luman (the rest) for Shiah students.

Usul (*Muhammadan jurisprudence*).—Musallamus-Subut (from the beginning to the end of Maqalah II) for Sunni students. Qawanin (the rest) for Shiah students.

Logic.—Sullam (Tasdiqat).

Rhetoric.—Faraid, by Mulla Mahmud of Jaunpur (from the beginning to the end of Fann-i-Sani).

Aqaid (*Theology*).—Sharh-i-Aqaid-i-Nasafi (second half) for Sunni students. Tanzih-ul-Anbia (first half) for Shiah students.

Philosophy.—Hidayat-ul-Hikmat (Ilahiyat)—Addarus-ul-Awwaliyah (second half).

Persian—

Literature.—Masnavi of Mawlana Rumi (Daftar I). Kulliyat-i-Khaqani (Qasidahs—from the beginning to the end of the Qasidah which the Poet wrote while he was in prison, pages 1 to 106, Newal Kishore Edition, 1908).

Composition.—Essay-writing.

English.—Ivanhoe, by Scott. Jungle Book, by R. Kipling. English Poems, by Jennings. Poetical Selections, by School Book Society. English Grammar, Book IV, by Nesfield. A Manual of Translation, by B. M. Ganguli.

***N.B.*—Persian will be optional for students who take up English.**

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SCHEDULE III.

The subjects and marks of papers and the arrangement of the several groups of papers.

FIRST YEAR CLASS.

Serial No.	Time.	Subject of papers.	Maximum number of marks.	Groups of papers.
I	First day, Morning .	Arabic literature	35	I
II	Evening .	Arabic grammar	30	
III	Second day, Morning .	Arabic composition and translation .	35	
IV	Evening .	Muhammadan law . . .	25	II
V	Third day, Morning .	Arithmetic	25	
VI	Evening .	Persian text	25	III
VII	Fourth day, Morning .	Persian composition . . .	25	
VIII	Evening .	English text and grammar . . .	25	IV (alternative to III).
IX	Fifth day, Morning .	English composition and translation .	25	
		AGGREGATE TOTAL OF MARKS .	200	

SECOND YEAR CLASS.

I	First day, Morning .	Arabic literature	35	I
II	Evening .	Arabic grammar	30	
III	Second day, Morning .	Arabic composition and translation .	35	
IV	Evening .	Muhammadan law, including Faraiz .	50	II
V	Third day, Morning .	Muhammadan jurisprudence . . .	30	
VI	Evening	Logic	30	III
VII	Fourth day, Morning .	Geometry	30	
VIII	Evening .	Persian text	30	IV
IX	Fifth day, Morning .	Persian composition	30	
X	Evening .	English text and grammar . . .	30	V (alternative to IV).
XI	Sixth day, Morning .	English composition (essay) and translation.	30	
		AGGREGATE TOTAL OF MARKS .	300	

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THIRD YEAR CLASS.

Serial No.	Time.	Subject of papers.	Maximum number of marks.	Groups of papers.
I	First day, Morning .	Arabic poetry	30	I
II	Evening .	Arabic prose	30	
III	Second day, Morning .	Arabic grammar	25	
IV	Evening .	Arabic composition and translation .	30	
V	Third day, Morning .	Muhammadan law	25	II
VI	Evening .	Muhammadan jurisprudence . . .	25	
VII	Fourth day, Morning .	Logic	25	III
VIII	Evening .	Rhetoric	25	
IX	Fifth day, Morning .	Geometry	25	
X	Evening .	Persian literature	30	IV
XI	Sixth day, Morning .	Persian composition	30	
XII	Evening .	English text and grammar . . .	30	V (alternative to IV).
XIII	Seventh day, Morning .	English essay and translation . .	30	
		AGGREGATE TOTAL OF MARKS .	300	

FOURTH YEAR CLASS.

I	First day, Morning .	Arabic poetry	40	I
II	Evening .	Arabic prose	40	
III	Second day, Morning .	Arabic grammar	30	
IV	Evening .	Arabic composition and translation .	40	
V	Third day, Morning .	Muhammadan law	30	II
VI	Evening .	Muhammadan jurisprudence . . .	25	
VII	Fourth day, Morning	Logic	30	III
VIII	Evening .	Rhetoric	25	
IX	Fifth day, Morning .	Geometry	25	
X	Evening .	Philosophy	30	IV
XI	Sixth day, Morning .	Theology	25	
XII	Evening .	Persian literature	30	V
XIII	Seventh day, Morning .	Persian composition	30	
XIV	Evening .	English text and grammar . . .	30	VI (alternative to V).
XV	Eighth day, Morning .	English essay and translation . .	30	
		AGGREGATE TOTAL OF MARKS .	400	

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD—*contd.*

FIFTH YEAR CLASS.

Serial No.	Time.	Subject of papers.	Maximum number of marks.	Groups of papers.
I	First day, Morning .	Arabic poetry	45	I
II	Evening .	Arabic prose	45	
III	Second day, Morning .	Arabic composition and translation .	40	
IV	Evening .	Muhammadan law	30	II
V	Third day, Morning .	Muhammadan jurisprudence . . .	30	
VI	Evening .	Logic	30	III
VII	Fourth day, Morning .	Rhetoric	30	
VIII	Evening .	Geometry	30	
IX	Fifth day, Morning .	Philosophy	30	IV
X	Evening .	Theology	30	
XI	Sixth day, Morning .	Persian literature	30	V
XII	Evening .	Persian composition . . .	30	
XIII	Seventh day, Morning .	English text and grammar . . .	30	VI (alternative to V).
XIV	Evening .	English essay and translation . .	30	
		AGGREGATE TOTAL OF MARKS .	400	

RULES FOR THE TITLE EXAMINATION.

THE title course shall extend over a period of three years, at the end of which the final examination for the title shall be held. Examinations shall also be held at the end of the first and second years, upon which promotion to the next higher class will depend.

2. Classes for this course will be opened in the Calcutta Madrassah only. Students who have passed the higher madrassah standard examination from any of the affiliated madrassahs of Bengal shall be eligible for admission to the title course, but no applicant will be admitted otherwise than to the first year class.

3. After completing the studies for the first year class of the title course, students will be allowed to specialise in one or more of the following four groups:—

(*a*) Hadis (The Traditions). Tafsir (Interpretations on the Quran), and Aqaid (Theology).
(*b*) Muhammadan law and jurisprudence.
(*c*) Literature, rhetoric, and prosody.
(*d*) Logic and philosophy.

The general history of Islam will be included under each of the four groups shown above, but no books will be prescribed. The complete syllabus for the title course is given in Schedule I.

4. The examinations shall be held in April, the exact date of the commencement thereof being annually fixed and published by the Registrar, Central Board of Examiners, Bengal Madrassahs, with the sanction of the Director of Public Instruction, Bengal. The examiners shall also be selected by the Registrar for each year's examinations, subject to the confirmation of the Director of Public Instruction, Bengal.

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD—*contd.*

5. The examinations to be held at the end of the course prescribed for the first and second year classes will be conducted as class examination and no fees will be levied from candidates appearing at them.

A fee of Rs. 20 will be charged for admission to the final examination for the Title in each group of the subjects.

6. The examination for the first year class of the title course shall be held for five days, two papers being set for each day of the examination. Three hours' time shall be allowed for each of the papers set in the forenoon as well as those set in the afternoon.

At the annual examination of the second year class as well as at the final examination for the Title, there will be four papers in each group and one additional paper on the history of Islam in general,—one paper of five hours being set for each day.

The arrangement of the papers and their marks shall be as shown is Schedule II.

7. To secure promotion from class to class a student must obtain at least 50 per cent. in the aggregate and 33 per cent. in each subject at the annual examination.

At the final examination a candidate securing not less than 50 per cent. in each paper and 70 per cent. of the aggregate total of marks for his specialised group shall be considered eligible for the Title testifying to the proficiency in the group.

8. The following Titles shall be bestowed :—

(*a*) *Fakhr-ul-Muhaddisin.*—For proficiency in Hadis, Tafsir, Aqaid and general history of Islam.

(*b*) *Fakhr-ul-Fuqaha.*—For proficiency in Fiqh, Usul and general history of Islam.

(*c*) *Fakhr-ul-Udaba.*—For proficiency in literature, rhetoric, prosody and general history of Islam.

(*d*) *Fakhr-ul-Hukama.*—For proficiency in logic and philosophy and general history of Islam.

9. After the close of the summer vacation the Registrar shall send to the Director of Public Instruction, Bengal, for sanction and publication in the *Calcutta Gazette*, a list of candidates who have qualified themselves for the Title on the results of the final examination, mentioning in each case the special group taken by the candidate, and the Title appertaining thereto. A certificate of proficiency signed by the Registrar and the Director of Public Instruction, showing by the appropriate Title the branch of learning which has been studied shall be granted to each successful candidate.

SCHEDULE I.

The syllabus of studies for the title course.

FIRST YEAR CLASS.

Arabic Literature.—Maqamat-i-Hariri (VI to X, inclusive). Kitab-ul-Aghani (first half of Volume I of Beyrouth Selection). Ka'b-ibn-i Zuhayr's Qasidah called "Bana Suad." Hamasah-Bab-ul-Hamasah (first half, Calcutta Edition, 1856 A. D.).

Hadis (*The Traditions*).—Tirmizi (whole) and Ibn-i-Maja (whole) for Sunni students. Usul Kafi (first half) for Shiah students.

Tafsir (*Interpretations of the Quran*).—Boyzavi (from the beginning down to the half of Surah-i-Baqr) for Sunni students. Tafsir-i-Safi (first one-third) for Shiah students.

Rhetoric.—Paraid, by Mulla Mahmud of Jaunpur (from the beginning of Fann-i-Salis to the end of Qanun-i-awwal).

Aqaid (*Theology*).—Aqaid-i-Jalali (whole) for Sunni students. Tanzih-ul-Anbia (second half) for Shiah students.

Philosophy.—Sadra (from the beginning to Bahs-i-Zaman, inclusive). Shams-i-Bazegha (from the beginning to the end of Bab-i-Sani, up to page 58, Mustafai edition, 1288 A. H.)

Logic.—Qazi Mobarak (from the beginning to Bahs-i-Mauzu, inclusive). Hamdullah (from the beginning to Bahs-i-Shartiyat, inclusive).

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Group (*a*).—Hadis, Tafsir, and Aqaid.

SECOND YEAR CLASS.

Hadis.—Abu Daud (whole) and Nesai (whole) for Sunni students. Wasail (whole) for Shiah students.

Tafsir.—Kashshaf (whole) for Sunni students. Majma-ul-Bayan (first half) for Shiah students.

Aquaid.—Sharh-i-Maqasid (whole) for Sunni students. Shawariq (whole) for Shiah students.

THIRD YEAR CLASS.

Hadis.—Muslim (whole) and Bukhari (whole) for Sunni students. Istibsar (whole) for Shiah students.

Tafsir.—Tafsir-i-Tabari (whole) for Sunni students. Majma-ul-Bayan (second half) for Shiah students.

Aqaid.—Sharh-i-Mowaqif (whole) for Sunni students. Sharh-i-Tajrid (whole) for Shiah students.

Group (*b*).—Muhammadan law and jurisprudence.

SECOND YEAR CLASS.

Muhammadan law.—Hidayah, Volumes I and II, and Fath-ul-Qadir, Volumes I and II for Sunni students. Qawaid-i-Allama (first half) for Shiah students.

Muhammadan jurisprudence.—Tahriri-Ibn-ul-Humam (whole) and Talwih (whole) for Sunni students. Rasail-i-Shaikh Murtaza (first half) for Shiah students.

THIRD YEAR CLASS.

Muhammadan Law.—Hidayah, Volumes III and IV, and Fath-ul-Qadir, Volumes III and IV, for Sunni students. Qawaid-i-Allama (second half) for Shiah students.

Muhammadan Jurisprudence.—Usul-i-Bazdavi, with its commentary, called the Kashfi-i-Usul-i-Bazdavi (whole) for Sunni students. Rasail-i-Shaikh Murtaza (second half) for Shiah students.

Group (*c*).—Literature, rhetoric and prosody.

SECOND YEAR CLASS.

Literature.—Maqamat-i-Hariri (whole). Hamasah (whole). Kitab-ul-Aghani, Volume I.

Rhetoric.—Sakkaki's Miftah-ul-Ulum (whole).

THIRD YEAR CLASS.

Literature.—Nahj-ul-Balaghat (whole). Kitab-ul-Aghani, Volumes II and III.

Rhetoric.—Asrar-ul-Balaghat, by Abdul Qahir Jurjani (whole).

Group (*d*).—Logic and philosophy.

SECOND YEAR CLASS.

Logic.—Sharh-i-Matali' (whole). Asfar-i-Arbaa'h (whole).

Philosophy.—Sharh-i-Isharat (whole). Sharh-i-Cheghmini (first half).

THIRD YEAR CLASS.

Logic.—Ufuqul-Mubin (whole). Mantiqiyat-ush-Shifa.

Philosophy.—Ilahiyat-Sush-hifa. Sharh-i-Cheghmini (second half).

ABDULLAH, Shams-ul-Ulama MUFTI MUHAMMAD—*contd.*

SCHEDULE II.

The subjects, the arrangement of papers, and the marks.

FIRST YEAR CLASS.

Serial No.	Time.	Subject of papers.	Maximum number of marks.
I	First day, Morning	Arabic poetry	50
II	Evening	Arabic prose	50
III	Second day, Morning	Arabic essay	50
IV	Evening	Tafsir	50
V	Third day, Morning	Hadis (Tirmizi)	50
VI	Evening	Hadis (Ibn-i-maja)	50
VII	Fourth day, Morning	Logic	50
VIII	Evening	Rhetoric	50
IX	Fifth day, Morning	Philosophy	50
X	Evening	Theology	50
		AGGREGATE TOTAL OF MARKS	500

Group (*a*).—Hadis, Tafsir and Aqaid.

SECOND YEAR CLASS.

I	First day	Hadis (Abu Daud)	100
II	Second day	Hadis (Nasai)	100
III	Third day	Tafsir (Kashshaf)	100
IV	Fourth day	Aqaid	100
V	Fifth day	General history of Islam	100
		AGGREGATE TOTAL OF MARKS	500

THIRD YEAR CLASS.

I	First day	Hadis (Muslim)	100
II	Second day	Hadis (Bukhari)	100
III	Third day	Tafsir	100
IV	Fourth day	Aqaid	100
V	Fifth day	General history of Islam	100
		AGGREGATE TOTAL OF MARKS	500

IX. MEDICINE.

General Memoranda.

Ayurvedic Doctors of Calcutta.

We, the undersigned members of the medical profession practising the Ayurvedic system of medicine, beg to bring before you the following facts regarding the Ayurvedic system, and request that the Calcutta University Commission would make it convenient to take the evidence of some of us on the subject.

From His Majesty the King-Emperor downwards the necessity of conserving the ancient culture of India as embodied in the various theoretical and practical sciences and arts of the East has been recognised on all hands. We beg to submit that of all departments of this culture the science of Hindu medicine merits the greatest support not only as the fountain-head of the clinical wisdom of ages, but also as a science that had once made great progress in all its branches and was the source of inspiration in the progress of medical knowledge all over the world. Although its scientific study has been neglected for centuries for reasons over which Indians had no control, it has survived and held its own in the practical field even to the present day and has been resorted to by high and low alike amongst the Indian population. There can be little doubt that its therapeutic results are in many cases remarkable. We may also add that the preparations of indigenous drugs according to the Ayurvedic Pharmacopœia have been found in our comparative study and observation to be more suitable to the Indian constitution than foreign medicines.

We may also point out that the vast population of India is yet benefited by the Ayurvedic system to the largest extent.

Unfortunately, the Indian universities have so far done very little towards the conservation and proper study of this very useful branch of oriental learning. We venture to think that the medical science of the world would have made greater progress, and suffering humanity would have been more benefited than at present, if suitable arrangements for the systematic and scientific study of Ayurveda could be made under the ægis of our universities.

We, therefore, earnestly pray that a recommendation for the establishment of a separate Ayurvedic Board be made by the University Commission as a preliminary step towards the proper study of, and researches in, the Ayurvedic system in our University.

Surendra Nath Goswami.

Nogendra Nath Sen.

Rakhal Chandra Sen.

Gananath Sen (Mahamahopadhyaya).

Jamini Bhushan Ray, Kaviratna.

Dakshina Ranjan Ray Chaudhury.

Banerjef, M. N.

The students that pass out of the medical schools obtain diplomas from the State Medical Faculty. The University should be represented on that Faculty and should have some control generally over all medical education.

GHOSH, BIMAL CHANDRA.

Scheme for the medical course, making the course last for six years for matriculates, five years for those who pass the I.Sc., and four years for B. Sc's.

1. Any matriculate can take—

(*a*) Part I of preliminary science. Physics, inorganic chemistry, after studying one year at a recognised laboratory.

(*b*) Part II of preliminary science. Biology, organic chemistry, physical chemistry, after studying two years at a recognised laboratory.

2. Any candidate who has passed the I. A. or I. Sc. in physics and inorganic chemistry will be excused Part I and can take Part II of Preliminary Science after one year.

B. Sc's will be excused such subjects as they have done before and can take the remaining subjects at the same time as the first M. B.

3. Colleges and laboratories should arrange that as far as possible *medical men* with proper qualifications act as *demonstrators* to preliminary science candidates.

4. The first M. B. should be taken after two years of study in a medical college after passing the Preliminary Science and be divided up into two parts which may be taken separately or together :—

(*a*) Part I of first M. B. to include anatomy and physiology.

(*b*) Part II of first M. B. to include pathology and pharmacology.

(Pathology and pharmacology are really advanced physiology.)

5. The second M. B. examination should be divided into two parts. Part I to be taken at the end of the first year of clinical studies (*i.e.*, fifth year for matriculates, fourth year for I. Sc's. and third year for B. Sc's.) and should comprise bacteriology, hygiene and medical jurisprudence.

6. Part II of the second M. B. to be taken at the end of the second year of clinical studies and should include medicine, surgery, midwifery and gynæcology.

RAHMAN, HAKIM MASIHUR.

The Calcutta University has been rendering immense service to the cause of education for a very long time, and its utility was further accentuated during the vice-chancellorship of Sir Asutosh Mookerjee,. But the work and jurisdiction of the University have grown to huge dimensions, and it is meet that the University Commission shall help the people of this country to make the Calcutta University an ideal university.

It is a growing desire of the educated community of the country that there should be more universities in India, and for that matter in Bengal, and so they have been satisfied that the wishes have been met to some extent by the establishment of the Mysore University, Patna University, the Hindu University and the proposed establishment of Dacca University, Rangoon University, Nagpur University, Aligarh University, and other universities in other centres of learning.

I believe the huge overcrowding in the Calcutta colleges which are chiefly attended by mofussil students can be easily relieved by setting up colleges in the different districts of Bengal, the control whereof may be vested in the Dacca University and Calcutta University. The great rush of students to Calcutta is subversive of discipline and detrimental to the creation of an atmosphere of pure study. Instead of contemplating the abolition of certain existing colleges in Bengal there ought to be an earnest effort on the part of Government, the municipalities, district boards, and the people to place them on firm foundations so that students may not be required to flock to Calcutta.

I beg to suggest that as the University of Calcutta is now proposing to found a degree for commerce and technology it is quite fit that there should be a degree for Tibb

RAHMAN, HAKIM MASIHUR—*contd.*

(Unani). The short history of Unani is as follows and I believe that it will be found interesting :—

Pythagoris, the Greek philosopher, may be said to be the originator of the system of Unani. It was Hippocrates later on who wrote a scientific treatise on Unani. Aristotle, Galen and Dioscrides made substantial contributions to Unani. During the rise of Islam in Damascus and subsequent foundation of the Baghdad University in the glorious time of Haroun-al-Raschid this system of learning got a good deal of impetus, and the translation into Arabic of Greek books on Unani was taken in hand. Abu-Bekr-ibne Zakariah Rhazi (Rhazes) was the first man who since 850 A.D. organised the various branches of this science into a consistent whole. The "Qanoon" of Sheikh-Reis Avicenna, who flourished in 980 A.D., is an authority on this science and this work was translated into Latin, French and English from 1593 to 1595.

Unani had an extensive sphere of influence as early as the twelfth century A.D. It was in the tentL or eleventh century that Abul Kasem Zaharavi of Zahara near Cordova in Spain wrote valuable books on Unani and many of them were translated into Latin. The portion on surgery had a recognised position in the then educated world. The book on Unani-Surgery was reprinted in Lucknow in 1912. Though the origin of Unani is Greek, it has been developed and organised by Arabic commentators. An effort has been made to revive the study of Unani by the formation of the All-India Ayurvedic and Tibbi Conference which first sat in 1910 at Delhi. There are only two schools of Unani at Delhi and Lucknow. Besides Hazeq-ul-mulk Hakim Azmal Khan of Delhi, Shafa-ul-mulk Abdur Rashid of Lucknow is one of the foremost Unani practitioners in India.

I further suggest that lessons ought to be imparted on Unani in every Madrassah in Bengal as that would enable the boys to have acquaintance with the laws of health and hygiene. The Muhammadan population of Bengal is very large. The students who pass out of madrassahs become known as maulvis and become the heads of their community. They, as a matter of course, wield a good deal of influence over the people, but poverty always stares them in the face for want of any suitable employment. So it is of the utmost importance that the study of Unani should be in the prescribed curriculum for the students of madrassahs, which will open a new vista of becoming a recognised rofession.

In view of the fact that researches in oriental learning are being carried on vigorously in Bengal and that there has been built up in Calcutta a school of tropical medicine, it is quite proper and useful to the people that researches of Unani ought to be carried on under the auspices of the University and that a chair in Unani ought to be founded. It is a welcome sign of the times that the eminent Kavirajes and Hakims of India are making a mighty effort to revive and popularise the scientific studies of Ayurveda and Unani. The Reception Committee of the All-India Muhammadan Educational Conference held in Calcutta during Christmas have unanimously accepted the following resolution which was proposed by me :—

> That this Conference urges upon the Government of India the desirability of reviving and popularising the Unani system of medical education which has been so useful in dealing with the tropical diseases and of establishing Unani medical colleges at least in the presidency towns.

If the University were to take those studies within its fold two most important, useful and ancient branches of learning would be easily resuscitated. If a large number of our boys were to take degrees in Ayurveda and Unani, the great problem of unemployment among the middle classes would, to a great extent, be solved. It is a pity that such an ancient science as that of Unani has been most ruthlessly neglected so long. It is only the Government and the University that can introduce and encourage the study of Unani.

In this connection, I beg humbly to state that I have made an effort to popularise the study of Unani by compiling two books on Unani, *viz.*—*Sahaj Hakimi Siksha* and *Hakimi Drabyagun Siksha* in Bengali. But I am sorry to state up till now my efforts have received scanty recognition. As soon as the teaching of Unani is introduced by the University, books on Unani will be translated into popular Bengali by Bengali writers well-versed in Urdu and Arabic.

CALVERT, Lt.-Col. J. T.

20th February 1918.

Time of transition.—The Calcutta University cannot be dissociated from its environment. The period is one of transition and therefore one of great difficulty. Bengal is ceasing to be a purely agricultural province and is becoming a commercial and industrial centre. The middle classes therefore are increasing in numbers, but cannot find sufficient employment. The University again is ceasing to be a purely examining body and is undertaking teaching functions. The social life of the students presents difficulties. Many are married with families and therefore need to make money as soon as possible. This is a great obstacle in the way of Indian students undertaking research. The joint-family system again accentuates the problem, as the clever boy has to support other members of the family. The expense of living in Calcutta also is very considerable and is still growing. This affects all sections of the community. The application of western ideals to Calcutta conditions therefore is very difficult. The witness deprecated drastic changes.

2. *Efficiency of the Medical College.*—The Calcutta college is as efficient as any in India. The witness said that he and his colleagues were fully alive to the defects of the college and hoped that with the removal of the financial stringency great improvements would be made. The staff should be increased and special departments should be created. At present the college staff is so busy with graduate work that it cannot cope with post-graduate work. There are at present 1,088 students in the college and the numbers have been doubled within the last few years.

3. *Position of the principal.*—The witness is principal, professor of medicine, undertakes consulting practice, and is responsible for the management of the hospital. The work is heavy, but under existing conditions it is difficult to see how the pressure can be relieved. Devolution of responsibility is difficult in India, as there must be a head of an institution whose decision is final. The principal again must teach; otherwise he will lose contact with the students. He must also administer the hospital as there are many points of discipline which can only be attended to effectively by the principal. The principal, however, might be relieved of the necessity of taking consulting practice by the payment of an adequate salary.

4. *Medical practice.*—The professors of anatomy, physiology, biology and chemistry are debarred from private practice. The professor of pathology may only take consulting practice. In regard to the other professorships connection with the Medical College is regarded as an advertisement for private practice and therefore attracts the best men.

5. *The preliminary medical sciences* such as chemistry, zoology and biology might be taught in the colleges. The Presidency College, for example, might conveniently teach zoology and open the classes to medical students. There are, however, certain difficulties in the way of such a proposal. The military students have to receive instruction and it would be difficult to provide for them in the colleges. These students might suitably be taught in a military centre such as Lahore. The scientists again are apt to insist on too high and too theoretical a standard.

6. *Relationship between the University and the medical colleges.*—The whole of the theoretical teaching is in accordance with the university courses which have hitherto been laid down by the professors. The Belgachia College has only just been started and, therefore, the witness was unable to say whether complications would arise.

7. *The standard of admission* is steadily being raised. Only I. Sc. or graduate candidates are now taken. There are about 150 admissions each year and 750 applicants. 25 per cent. of admissions must now be reserved for Musalmans, 18 places are given to Beharis and Ooriyas, and 6 places to Assamese. A B. Sc. Hindu, therefore may be replaced by an I. Sc Musalman. In consequence, selection does not depend solely on efficiency. Failed students are counted as additional students as they attend only the clinical demonstrations.

8. *Staff.*—It is advisable that the staff remain Government servants. So long as Government pays the money it must control the appointments. Direct appointment to posts would be difficult.

ROGERS, SIR LEONARD.

20th February 1918.

School of Tropical Medicine.—This is the first real attempt at post-graduate teaching in medicine in India. The principal of the Medical College desires the two institutions to be kept separate. The new school therefore will primarily conduct research and give post-graduate teaching in tropical medicine and hygiene. In this connection, the witness observed that Indians had not hitherto had favourable opportunities of joining in the work of medical research. Rs. 60,000 a year have been promised for five years by commercial associations for research. There will be five or six professors in the first instance. There will also be a hygiene institute with two additional professors. The witness thought that the teacher in hygiene should also lecture at the Medical College. There will also be courses for subordinates who will receive a diploma for the six months cold weather course and short practical courses for three months during the rainy season.

Research should be associated with teaching. Each professor in the proposed school will have liberal time for research, but he will do some teaching.

2. *Preliminary science subject.*—It is not necessary for a medical man to teach subjects such as zoology, biology and chemistry to medical students. Indeed, it might be better to have this preliminary scientific work conducted outside the Medical College.

3. *Medical appointments.*—The clinical appointments must be held by medical men. In reply to a question, the witness said that there would be difficulties in abandoning the service system. The leave problem would become acute. The service system enables leave vacancies to be filled satisfactorily and efficiently. These acting appointments also enable the authorities to test the capacity of medical officers for teaching work. Above all, the Medical College and the Indian Medical Service have always been connected with the result that recruitment to the service has been kept at a high standard and good teachers for the Medical College have been obtained.

4. *Modification in the present system.*—The Council of Professors should have greater powers and scope. At present, the council scarcely exists except in name. It is unwise also to attach the principalship of the college solely to the professorship of medicine. The principal should be given an adequate salary, but should be debarred even from consulting practice. The professors should also be real specialists in their own departments of study. This is scarcely possible under the present system under which the professors undertake general private practice. It would be better to pay adequate salaries and relieve professors from the necessity of taking any but consulting practice. Government will then have to employ other doctors to look after the needs of Government servants.

5. *The Senate.*—The witness had declined renomination to his membership of the Senate because he was unable to find time to attend senate meetings and listen to discussions in which he was not concerned. It would be wise therefore to modify the existing organisation of the University so that medical professors would have the opportunity of supervising medical teaching without having to be present at meetings when other matters were being discussed.

The *ex-officio* membership of the Senate is undesirable, in the case of those who live far from Calcutta and can rarely attend meetings.

When a professor of the Medical College, who is a member of the Senate of the University, goes on long leave the officer who officiates for him should automatically become a temporary member of the Senate in his place.

SUTHERLAND, Lt.-Col. D. W.

20th February 1918.

1. *The matriculation and intermediate work.*—The University should concentrate on higher education and leave all preparatory work to the Education Department. A matriculation examination should replace the present entrance examination, and be restricted to candidates who propose to undertake a university course of study for a degree. The witness was in favour of the system in force in Australia, with grammar schools and preparatory colleges to prepare students for the university matriculation examination and for business life; and with a teaching university—comprising the special university colleges (science, medical, arts, law, engineering, etc.) and denominational residential colleges—for degree work and tutorial instructions. The witness also desired to see the teaching of English in the pre-medical courses improved as many students entering the medical college are deficient in their knowledge of English, both as regards composition and spelling.

2. *Concentration under the University.*—In Lahore most of the colleges teach the subjects of too many faculties. Witness would prefer one college for each faculty—law, science, medicine, arts, oriental, engineering, etc.—the whole making up the university group, and all being under control of the University. The other affiliated colleges should be denominational, residential and tutorial colleges only. Witness also expressed his opinion that medical students in Lahore see little of university life, and was of opinion that they would benefit by mixing freely with the students of other faculties.

3. *Medical education of women.*—The witness was questioned in regard to the admission of students to the Lady Hardinge Medical College for Women at Delhi. He explained that there had been trouble over the qualifications requred for admission to the college but that practically all the difficulties in regard to students from Calcutta, Allahabad, Bombay and Lahore had been removed and that only slight drawbacks remained in regard to Madras students.

4. *The Medical College, Lahore.*—The witness explained that in Lahore the Medical College for university students and the Medical School for sub-assistant surgeon students still remain associated, but separation of the school from the college is contemplated in the near future. There are 289 students in the college, and 342 in the school, or 631 medical students in all. The work of the principal is very heavy, for he is principal both of the college and school, and also professor of medicine and first physician to the hospital. In addition, he is medical superintendent of the hospital, but will be relieved of these extra duties after the end of the war. He was permitted to take consulting practice, but had very little leisure for it and had to charge relatively high fees to restrict the number of patients who sought his advice.

5. *Council of the College.*—There is a college council made up of the college professors which meets once a month during term time. The Council is a useful body which discusses and suggests improvements in the management and scope of the college. It is for the most part advisory to the principal, and does not deal with disciplinary cases as a routine, but was consulted by the principal on all matters during the college students' strike in 1914.

6. *Preliminary scientific work.*—In Lahore instruction in the preliminary sciences is imparted at the science colleges and students only enter the medical college after passing the F. Sc. Formerly, the teaching of science subjects took place at the Medical College, and after experience of both systems witness preferred the latter. He explained that the science colleges in Lahore were now overcrowded, and that with such a large number of B. Sc. students in the science colleges it was no longer possible to give medical considerations first place. He favoured the teaching of those science subjects by medical men rather than by pure science professors, for in that way attention could be concentrated on those portions of the science subject which would have a special value later to the medical student. He considered that sufficient ground for medical purposes was not covered in the F. Sc. course. He also believed that the science colleges in Lahore would welcome the "medical group" being again taken over by the medical college.

SUTHERLAND, Lt.-Col. D. W.—*contd.*—WILSON, Lt.-Col. R. P.

7. *Position of the Indian medical service in regard to the Medical College staff.*—The Indian medical service has been responsible for most of the medical training in India up-to-date, and any change which lessened the number of I. M. S. men on the staff might have unfavourable results. Recruitment for the Indian medical service would undoubtedly suffer if the medical chairs were thrown open to outside competition. The knowledge of the people and of their languages by the I. M. S. professors was of value, and the want of such knowledge might for a time at any rate affect the efficiency of professors recruited from outside India. The anatomy and physiology posts might, however, be thrown open without serious harm. Medical education also might be Imperial, and it would be an advantage to be able to transfer specialists from one province to another.

WILSON, Lt.-Col. R. P.

20th February 1918.

The Campbell Medical School.—The Campbell Medical School exists alongside the Medical College, but does not prepare for medical degrees. All lectures and teaching for medical students are now conducted in English. Students are prepared for the licentiateship of the State Medical Faculty of Bengal (L.S.M.F.), and it is hoped that shortly classes will be opened for students proceeding to the membership of the same licensing body (M. S. M. F.). This latter qualification entails a five years course of study. There is a possibility that the General Medical Council may not recognise the membership for registration. The witness was of the opinion that schools, such as the Campbell and Dacca, preparing students for something a little less exacting than the degree served a very useful purpose. There was no lack of scope for those who passed through the course. The successful students are employed by Government, district boards, municipalities, tea gardens, jute mills, the railways, etc.

2. *Courses.*—The course is one of four years and is divided into two parts, each of two years. A junior student takes chemistry and physics, anatomy, physiology, materia medica and pharmacy. The chemistry and physics are of an elementary order and are taught in relation to medical requirements. Chemistry and physics are taught at present in the Medical College, but the witness hoped that the Campbell School would soon have its own staff and laboratories for training in these two subjects. The final examination embraces surgery, including pathology, medicine (including pathology), midwifery and gynæcology, hygiene, and medical jurisprudence.

3. *Numbers and admission.*—The school will soon be brought up to the strength of 500 students. Last year there were 400 or 500 applicants for 120 vacancies. Students on admission are usually from seventeen to twenty years of age. The standard of admission is the matriculation examination of the Calcutta University, but a certain number of intermediates in science and arts apply. About 80 per cent. of the students pass their examinations and, therefore, there is not much wastage. When selected Campbell students were permitted to proceed for further medical studies to the Medical College Hospital for the M. B. degree, the results were good, and some obtained medals and prizes during the course of their training. This concession has now been removed as there is insufficient room at the Medical College.

4. *Women students.*—There are about 14 women students in this school at present most of whom are Indian Christians. Great concessions are given to female students. The standard of the admission qualification though low, is improving.

X. MUSALMANS, SPECIAL NEEDS OF.

General Memoranda.

AHSANULLAH, Khan Bahadur Maulvi.

The following is a summary of the measures which are calculated to secure for Muslims a proper share in the administration of the Calcutta University:

(*a*) The offices which are filled by nomination *viz.*, those of vice-chancellor, controller and university inspector should be held alternately by Hindus and Muslims.

(*b*) A reasonable proportion of the ministerial and higher appointments in the University should be thrown open to Muslims.

(c) Muhammadan interests should be duly represented on the staff, as also on the governing bodies of all schools and colleges affiliated to the University.

(*d*) There should be a separate board of studies for Bengali literature composed of Hindus and Musalmans in the proportion of two to one.

(*e*) A reasonable proportion of seats, whether filled by election or by nomination, should be fixed for Muslims.

(*f*) The Assistant Director of Public Instruction for Muhammadan education should be an *ex-officio* member of the Senate, the Syndicate and the Board of Accounts.

(*g*) The Muhammadan members on the Senate, the Syndicate and the Boards of Studies and Accounts should be elected by a Muhammadan electorate.

(*h*) A separate board of study should be established for the encouragement of Islamic studies.

All-India Muhammadan Educational Conference.

This Conference urges upon the Government the necessity of establishing a University on the lines of the universities which have been established in the industrial centres of Europe and other foreign countries.

2. Primary education should be made free and compulsory and a trial given in the presidency towns of India.

3. In consideration of the fact that able and competent men may be drawn to the profession of teaching and be induced to stick to their posts, this Conference urges upon Government the necessity of improving the status, pay and prospect of teachers in all grades of schools under the Education Department including those of the primary stage.

4. With a view to safeguard the interests of the Musalmans, it is desirable in the opinion of this Conference that in the Calcutta and the other Universities of India, adequate and effective representations of the Musalmans should be secured in the Senate, the Syndicate and other committees of the University as well as in the staff employed by the University, and this Conference is further of opinion that the election of Muhammadan fellows by the graduates and the educational officers should be effected by separate Muhammandan electorates and that the Indian University Act and Regulations may be modified accordingly.

5. Having regard to the educational interest of the Muhammadans, this Conference deems it necessary that the offices of vice-chancellor, controller of examinations and the inspector of colleges be alternately held by Muslim and non-Muslim.

6. This Conference recommends to Government that greater encouragement be given to the existing girls' schools by extending to them suitable financial aid and providing facilities to the Muslim community for establishing more girls' schools.

7. The courses of studies for girls should be different from those prescribed for boys and that in framing the syllabus and selecting text-books the secretaries and managers of girls' schools should be consulted as far as practicable.

All-India Muhammadan Educational Conference—*contd.*

8. In view of the great difficulty experienced in securing suitable and competent female teachers for Muslim girls' schools this Conference is of opinion that training schools for Muslim lady teachers should be established by Government at all provincial head-quarters.

9. This Conference urges upon the Government of Bengal the necessity of expediting the establishment of the Muhammadan Arts College for which land has been acquired and that the scheme should not be postponed any longer.

10. Having regard to the educational interest of the Muhammadans this Conference deems it highly desirable that Muhammadans should be properly and adequately represented in the governing bodies of all colleges and high schools and that the provision for Muhammadan representation be a necessary condition to affiliation.

11. Having regard to the fact that the proposed Muhammadan College in Calcutta has not yet been established and that there exists a great difficulty for the students to get admission to the other existing colleges, this Conference urges upon the Government of Bengal the utmost necessity of reserving at least 50 per cent. seats in all the Government Colleges of Bengal and 30 per cent. seats in aided colleges affiliated to the Calcutta University for Muslim students in the I. A. and B. A. classes.

12. Having regard to the backwardness and poverty of the Muhammadans of the Bengal Presidency, this Conference considers that free studentships should be raised to 15 per cent. at least of the total number of free students and should be granted in all institutions including medical and professional colleges.

13. Having regard to the fact that the Arabic and Persian courses prescribed for the Calcutta Madrassah are superior to those prescribed for the Maulvi Fazil and Maulvi Alim Examinations, this Conference deems it desirable that facilities similar to those granted by the Punjab University be given by the Calcutta University to the students of oriental learning desirous of going in for its several examinations.

14. It is desirable that the Assistant Director of Public Instruction for Muhammadan education and the senior Muhammadan Professor of the Presidency College and senior Inspector of Schools should be *ex-officio* members of the Senate and the Syndicate.

15. This Conference urges upon the Government the necessity of opening a faculty of Islamic studies including Islamic history and literature.

16. Having regard to the fact that vernacular is now a compulsory subject for study in the University, this Conference urges upon the authorities concerned the desirability of including in each vernacular the books written by Muhammadan authors in the list of text-books in every university examination.

17. This Conference recommends that Urdu should be included in the list of second languages for the non-Urdu speaking boys and considers that a course in Urdu language for non-Urdu speaking students can be framed which may be equal in difficulty and may impart the same culture as the courses now prescribed for Arabic and Persian.

18. In view of the fact that Muhammadan students of the Calcutta University taking Arabic or Persian as their second languages find a great difficulty in the choice of their subjects for the I. A. and B. A. examinations for the want of affiliation of many colleges in those subjects, this Conference urges upon the Calcutta University the desirability of requiring the authorities of such colleges to appoint professors of Arabic or Persian or both as the case may be in their respective colleges.

19. This Conference urges upon the authorities of the Calcutta University the necessity of omitting from the I. A. and B. A. Persian courses the Arabic portions prescribed for those examinations.

20. This Conference urges upon the Government and the various universities the desirability of excluding all books containing passages which are likely to wound the religious feelings of the Musalmans from the lists of text-books.

21. In the interest and advancement of higher education in Eastern Bengal and Assam, this Conference urges upon the Government the desirability of giving effect to the scheme of the Dacca University and taking steps of establishing the proposed university without further delay.

Bengal Presidency Muhammadan Educational Association, Calcutta.

Bengal Presidency Muhammadan Educational Association, Calcutta.

Presiding as the Calcutta University does over the higher education of millions of Muhammadans, it is necessary that the Muhammadans should be provided with an adequate representation on its controlling bodies and boards. The absence of such representation cannot but be highly detrimental to the best interests of Muhammadan education in Bengal, and incidents have amply shown that the present state of affairs has, in many cases, resulted in the neglect and even sacrifice of the claims of Muhammadans. Even the Government of India have, from time to time, felt the absence, and recognised the need of the Muhammadan element in the managing bodies and boards of the University of Calcutta. In their letter to the Dacca University Committee, the Government of India commented on the small part that has been assigned to the Muhammadans in the government of the University of Calcutta, and indicated a desire that the Muhammadans should have a voice in the management of the new University that is to be established at Dacca. And later on in the memorable circular letter dated the 3rd April 1913, in which the Government of India surveyed the whole problem of Muslim education, the fact was again recognised and attention was drawn to the very inadequate number of Muslim Fellows in the Senate of the University.

2. The Commissioners will be gratified to learn that higher education among the Muslims of Bengal has come up to a stage when no less than a hundred and even more Muhammadan graduates are being turned out every year by the University. A desire to be associated with the administration of affairs in their own Alma Mater, is one of the highest and most natural aspirations of these graduates. It will be greatly lowering their level of thought and activities if their natural and commendable aspirations in this matter are not satisfied, specially at this stage of Muhammadan education in Bengal.

3. It is significant that ever since the introduction of the elective system, not one single Muhammadan gentleman has been successful in being elected a fellow of the University, though some of the candidates were graduates of proved merit and ability. The right of voting is practically wholly confined to Hindu graduates who control and dominate the situation by virtue of sheer numbers, and who seldom, if ever, consent to record a vote in favour of a Muslim in preference to a non-Muslim candidate. The result is that in the matter of admission to the University through election, the doors of the University are wholly shut so far as the Muhammadans are concerned.

4. The Government of India in whom is vested the statutory power of nomination, extending to the extent of 80 fellows, in order to preserve the necessary equilibrium between the various interests, have not hitherto chosen to select any appreciable number of Muhammadan fellows. It will be an act of obvious and unmerited injustice to exclude the Musalmans from the deliberative and governing bodies of the University when qualified Muhammadans are available in growing numbers with the growth and development of higher education among Musalmans. Within the last decade, not a single Muhammadan has found a place in the Syndicate, though things were slightly better under the older regulations when one or two Muslims could occasionally find a place in the body.

5. While thanking the Government of India for their magnificent grant to the University for the residence of the students of the University Law College which enabled the University to erect the five-storied building fitly associated with the name of a renowned Viceroy, this Association sadly recalls the manner in which the interest of the Muslim students of that college have coolly been ignored by excluding the Muslim law students from that hostel. The Muslim students are above a hundred and sixty in that college, and although residential accommodation was sadly and urgently needed for them, the whole building was reserved for the Hindu students only. Recently, a new hostel has been opened at Mirzapore street where some law students have been allowed; but so long the claims of the Muslim students have strangely been brushed aside. This Association has reasons to believe that the claims of the Muslim students would not have been so flagrantly neglected, had the Muhammadans the slightest voice in the control of the university affairs.

6. In this connection the Association begs to refer to the Muhammadan mess at No. 2, Mirzapore street, in Calcutta which has apparently been started as a *solatium* to the

Bengal Presidency Muhammadan Educational Association, Calcutta—*contd.*

Muslim community for the total exclusion of its students from the University Law College hostel. A visit to the Mirzapore mess will disclose that far from being any *solatium*, the mess is a sad comment on the scant attention which Muslim interest has received at the hands of the university authorities. It must be extremely galling to the self-respect of the Muslim young men who have been huddled together in an uncomfortable and insanitary building and within the sight of the spacious and stately buildings which the Calcutta University has built for the use of the students of one community exclusively. This Association feels sure that the Muslim students would have received adequate and proper treatment with the Hindu students, had there been anything like adequate representation of the Muslim community on the governing bodies of the University.

7. Now that vernacular is a compulsory subject for studies in the University, it is desirable that the Bengali text-books should be more suitable and congenial to the Muhammadan students. As the matter stands at present, Bengali text-books, prescribed for the university examinations, are full of Hindu mythologies, stories and traditions often mixed with elaborate Sanskrit quotations. There are cases in which Muhammadan students suffer the misfortune of getting plucked in the vernacular only after having secured very creditable marks in other subjects. This Association has, again, no doubt that the difficulties of Muslim students with regard to their vernacular, arise from the way in which books of Muhammadan interests, or by Muhammadan authors, are unsympathetically treated, and never accepted as text-books in consequence of the almost total exclusion of Muhammadans from the councils of the university.

8. With the growth and extension of university work, the University has employed a large number of professors, and a very large number of assistants in its office. But there is not a single Muslim in the office, and only a very few in the tutorial staff. It is useless to contend that there has not been a single Muhammadan in the whole of the Presidency, competent enough for university office work, although quite a number of competent Muslims can be found, and have fitly been employed in other departments under the Government. For the sake of justice and fairness, if not for anything else, the Calcutta University—an embodiment of learning, culture and honesty, should have looked to the legitimate claims of the Muslim also.

9. It is not very clear on what principle the Fellows are selected and nominated. Academic attainments do not seem to be the guiding principle, probably on the ground that ability to manage the affairs of the University does not depend upon academic distinction. But this principle is hardly adhered to in nominating Fellows from the Muslim community. However, in more cases than one, fellowship has been bestowed by way of compliment. Exercise of influence through some unknown channels seems to be another determining factor. The absence of a fixed principle has often led to indiscrimination. It is very desirable that the statutory power of nomination should be exercised upon a fixed and intelligible principle.

10. This Association, therefore, most respectfully begs to approach the Commission with the prayer to remove the keenly felt grievances of the Muslim community in matters connected with the administration of the affairs of the Calcutta University, and to take into their consideration the proposals of reform set forth below :—

(*a*) The statutory powers of nomination should be exercised upon a fixed principle and that if the existing rules and regulations relating to the administration of the University do not allow such a course, they should be so amended and modified as to secure an adequate and effective representation of the Muhammadans in the Senate, the Syndicate and the different boards of studies to the extent of one-third of the total number of the nominated Fellows.

(*b*) The election of the Muslim Fellows in the above proportion should be through the medium of a special electorate composed of the following :—

(*a*) Muslim graduates registered and un-registered.

(*b*) Members of the councils—Supreme and Provincial.

(*c*) Barristers.

(*d*) Arabic and Persian professors.

(*e*) Principals and professors of Madrassahs.

The number of these educated men, it is submitted, will be sufficiently large to form an electorate.

Bengal Presidency Muhammadan Educational Association, Calcutta—*contd.*

(*c*) The Bengali text-books containing stories and passages offensive to the Muslim sentiments, should not be included in the list of text-books; such books should be made suitable and congenial; and vernacular books written by Muslim authors should also be prescribed for university examinations, at any rate, as alternative courses for Muslim students.

(*d*) Greater facilities should be given to the advancement of oriental art and literature.

(*e*) There should be a faculty of Islamic studies under the Calcutta University with chairs in the subjects of Islamic history, literature and antiquities.

(*f*) Urdu should be included in the list of second languages for those students whose vernacular is not Urdu.

(*g*) The Arabic portion from the Persian courses prescribed for the I. A. & B. A. examinations should be omitted and these courses should be made to consist of one language only.

(*h*) The Muhammadans should be duly represented in the governing bodies of colleges and high schools and this should be made a condition precedent to affiliation.

(*i*) The Assistant Director of Public Instruction, the Senior Persian or Arabic Professor of the Presidency College, and the Senior Muhammadan Inspector of Schools should be *ex-officio* members of the Senate and the Syndicate.

(*j*) A due proportion of the total number of higher university appointments, examinerships, and ministerial appointments should be granted to qualified Muslims who are becoming available in growing number.

(*k*) The teaching staff should be strengthened. The pay and prospects of teachers and professors are at present too low to attract competent and qualified men to the profession of teaching. Early steps should be taken to raise their pay and widen their prospects.

(*l*) The education of Indian girls should be considered and their courses of studies determined from the Indian point of view. Having regard to the conditions of the Indian home life and oriental manners and customs, the system of education for Indian girls should be somewhat different from that of Indian boys. Their education and training should be more practical with reference to the position they will fill in social life. While aiming at culture and liberal education, the courses of study intended for Indian girls should consist of more good books on domestic economy, hygiene, sanitation, nursing, house-keeping, home treatment, etc.

(*i*) A special syllabus for girls should be prepared dealing with
will give them an idea of domestic
the responsibilities of
of general
pra

Bengal Presidency Muhammadan Educational Association, Calcutta—*contd.*—Chaudhury, The Hon'ble NAWAB SYED NAWABALY, Khan Bahadur.

subjects for the I. A. and B. A. examinations for the want of affiliation of many colleges in these subjects, and also on account of non-appointment of Arabic and Persian professors in them, this Association urges upon the Commission and the Calcutta University the desirability of requiring the authorities of such colleges to appoint professors of Arabic, or Persian, or both as the case may be, in their respective colleges.

(*q*) In the interest and advancement of high education in Eastern Bengal and Assam the scheme of the Dacca University should be carried out, and that steps should be taken to establish the proposed University without further delay.

Chaudhury, The Hon'ble NAWAB SYED NAWABALY, Khan Bahadur.

The regulations should be revised with a view to secure for the Muhammadans a proper share in the administration of the Calcutta University.

2. A half of the Indian members on the Senate should be Muhammadans of whom one-fourth should be nominated and three-fourths elected by special electorates formed on as broad a franchise as possible.

3. A half of the Indian members on the Syndicate should be Muhammadans to be elected by the Muhammadan members of the Senate. The same proportion of representation to be maintained on the Board of Accounts also. On other Boards not including Arabic, Persian and Urdu, adequate provision should be made for Muhammadan representation.

4. The Assistant Director of Public Instruction for Muhammadan Education should be an *ex-officio* member of the Syndicate, the Senate and the Board of Accounts.

5. Muhammadan interests should be fairly represented on the governing bodies of all colleges affiliated to the University.

6. The office of vice-chancellor and controller and university inspector should be filled alternately by Hindus and Muhammadans.

7. A half of the ministerial and higher appointments in the University should be reserved for Muhammadans.

8. A fair number of Muhammadans should be appointed as examiners and paper setters.

9. Roll-numbers should be used instead of the names of candidates on answer

[illegible] should be asked to make arrangements for the re-admis-[illegible]ations for reasons other than incapacity.

[illegible]arate Muslim hostels attached to

[illegible]rities of private colleges

[illegible]hall be

Chaudhury, The Hon'ble Nawab Syed Nawabally, Khan Bahadur.—*contd.*—Musalmans of Assam.

21. Religious instruction for Muhammadan boys should form a part of the university course.

22. There should be a separate Board for Bengali literature composed of equal number of Hindus and Muhammadans for selecting suitable Bengali text-books for all the university examinations.

23. Books in Bengali suited to Muslim taste should be prescribed as alternative text-books.

24. When a question bearing on mythology is set in the examination paper there should be an alternative question of a general character.

25. There should be a separate section in the annual report of the University dealing with the progress of Muhammadan education in the different courses of the University.

26. The jurisdiction of the proposed Dacca University should not be confined to the town of Dacca proper.

Musalmans of Assam.

We, the undersigned, on behalf of the Muslims of Assam, offer you a heartly welcome to this historic town and beg to tender our sincere thanks for allowing us an opportunity to represent the needs of the Muhammadan population of the province, in matters of university education. The people of Assam have not been able to benefit, to its fullest extent, of the highest collegiate education, for a variety of reasons, principal amongst which are the distance of the university centre, the prohibitive cost of Calcutta and other Bengal cities, and the comparatively short period, in which English education has been introduced in the major portion of the province. The Muhammadans, therefore, are of opinion that there should be a separate university for Assam which will greatly facilitate the diffusion of higher training and tackle the different tasks of local needs and requirements.

2. That for the safeguard of the Muslim interests and for the fair representation of the community in the constitution of the University, provision should be made that at least one-third of the seats therein, be reserved for the Muslims in the Senate, Syndicate and other controlling bodies and that the members thereof be elected from a Muslim electorate.

3. Pending the creation of a separate university, the Muslims of the province keenly feel the want of their representation in the Senate and Syndicate of the Calcutta University, wherein the Muslim element is not adequately represented They also find that Muhammadan interest is not properly represented in the governing bodies of the Assam colleges and therefore submit that the consititution of the present governing-bodies of the Assam colleges should be so modified as to offer the inclusion of at least one non-official Muhammadan member therein.

4. The Muhammadans greatly feel that the subjects Arabic and Persian are not affiliated to the honours degree standard in both the existing colleges, as they are the subjects which Muslims naturally prefer for their honour's study. Provision to teach these subjects up to the M. A. standard ought to be made in our colleges, so that the Muslim students be not compelled to proceed to Calcutta or Dacca for the highest training in their own subjects.

5. To encourage and facilitate the Muhammadans taking to collegiate education in greater numbers, a sufficient number of seats in colleges and adequate hostel accommodation should be provided in the Assam colleges. For the present we advocate that 30 and 40 per cent. of the seats be made available for Muhammadan students in the Cotton and Murarichand Colleges, respectively.

6. There has been a general impression amongst the Muhammadans that the appearance of the name of the student on the answer-book of the different examinations acts to the prejudice of the Muhammadan candidate. This matter was ventilated lately with facts and figures in a Calcutta Muslim paper. The Muslims of the province are of opinion that the roll number alone should appear in the answer books—and not the name of the student.

7. Owing to the multiplicity of languages which Muslim students have to learn, they cannot pay enough attention to Arabic or Persian which they take up as a second language and acquire only a smattering of them and profit very little from them in after life. But if they are allowed to take up Urdu as an alternative language they will be sure to derive more benefit in their practical concerns, and, to the Assamese students Urdu is as difficult as Arabic or Persian while it is equally useful to them both as literature and for their religious needs. We, therefore, submit that Urdu should be placed on the same footing as Arabic and Persian in the University curricula.

8. In order to develope the study of classical languages and in view of the strong inclination to Islamic studies amongst the Muhammadans, we are of opinion that the University should include a faculty of oriental learning and recognise the senior Madrassahs and award suitable degrees to their alumni.

9. With regard to the difficult question of the medium of instruction and examination in schools, we beg to submit that the present system has worked well, and we do not think that the conditions of the province are such as to justify the introduction of vernaculars as media of instruction in the top classes of the high schools.

10. In conclusion, we hope this representation of ours will meet your careful and favourable consideration. We again thank you for affording us this opportunity to represent the Muslim's view-point on university education.

SYED M. SAADULLA.

MUHAMMAD BERKHT MUJMODAR.

MAHOMED TAFAZZUL HUSSAIN HAZARIKA.

Musalmans of Berhampur.

Suitable hostel accommodation should be provided for the ever growing number of Muhammadan boys in the Krishnath College and the hostel should be placed under paid superintendents, and in other places where there is no hostel accommodation the same should be provided.

2. The College should be immediately affiliated in Arabic and Persian up to the B. A. standard and there should be at least two professors for teaching these subjects. It is submitted that in spite of the fact that all the Muhammadan boys did not know of the recent affiliation of the College in Arabic and Persian, there are fourteen boys in the first year and two in the second year taking up Persian and one in the first year and two in the second year who have taken up Arabic.

3. Every school and college should have more than one well-paid efficient Muhammadan teacher and professor for teaching Arabic, Persian and Urdu. The present paucity of Muhammadan students in very many institutions is due to the absence of facilities for teaching Arabic and Persian.

4. Every school and college should have some Muhammadan teachers on the staff who, if not available locally, should be taken from other places and if this cannot be enforced, a well-equipped school and college should be established for Muhammadans, Berhampur or at Murshidabad, or the Nawab Bahadur's institution should be converted into a Muhammadan institution to supply the wants of the Muhammadans.

5. Muhammadans should have a sufficient number of seats in the Senate, Syndicate, examining boards and the text-book committees.

6. An adequate number of Muhammadans should also be appointed as university examiners, and text-books written by Muhammadans should be introduced in the schools.

7. That in the university examinations only the roll numbers of the students should be given and not the names.

8. That in the Krishnath College only four Mohsin stipends are granted to Muhammadan students and one or two stipends are awarded by the Honourable the Maharajah of Kasimbazar who also maintains 80 Hindu free students. Considering the percentage of the

Muhammadan population which is 52, it is humbly prayed that more Mohsin stipends should be granted to the college and to the schools. The Commission may also kindly ask the Maharajah to generously see his way to raise his number of grants of Muhammadan free studentships to at least 20, and the Honourable Nawab Bahadur of Murshidabad similarly to help the poor and deserving Muhammadan students of the college and the schools.

9. That lady teachers be appointed to teach Muhammadan girls under the "house-to-house visitation system."

10. That schools and colleges should have one hour recess every Friday to enable Muhammadan students to say their Jumma prayer.

Musalmans of Calcutta.

The peculiar difficulties and disabilities which arise in the education of the Musalmans of Bengal on account of their special circumstances, have made it necessary that the special features of their case should be fully placed before the Commission and should receive separate consideration from them. The very fact that not even 10 *per cent.* of those who receive university education are Muhammadans, although the Musalmans form 52·2 *per cent.* of the population of the Presidency, would lead to the irresistible conclusion that there is something wrong in the system which calls for immediate remedy. The question of university education we beg to submit, cannot be properly tackled without regard to the requirements of the people for whose benefit it is intended.

2. For a long time the reconstruction of a time-worn and patch-work system which has outgrown its utility has been demanded. We beg to point out that no scheme of reconstruction can be useful or beneficial unless it recognises the existence of conflicting ideals and conflicting interests in almost every sphere of life—social, political, and religious—among the different sections of the population. The principle and practice of education which might have proved beneficial in a country with uniform people, uniform interests and uniform ideals, must necessarily be modified to suit the special circumstances that exist in this country. We would urge upon you the necessity of giving, in any scheme of constructive educational reform that may have to be drawn, the fullest consideration to the defects and disabilities of every section of the people as they exist at present, without assuming an ideal state of things that ought to have existed.

3. When Persian was the court language of Bengal the Muhammadans enjoyed their share in the administration of the Presidency and held the highest positions of trust and responsibility. But, on the introduction of English, our Hindu brethren had no difficulty in substituting one foreign language for another, but unfortunately the Musalmans did not adapt themselves to the changed conditions and continued their education on the old traditional lines through the medium of their classical languages, and thus failed to derive full benefit from the educational facilities provided by the Government. We submit that the position is in no way affected, even if it were conceded that to some extent the Musalmans themselves are responsible for their present disadvantages and difficulties The backward condition of the Musalmans attracted the special attention of Sir William Hunter's Commission of 1883, and in Chapter IX, Section 2 of the report they made special recommendations for the spread of primary and secondary education among the Muhammadans. The need for special provision for university education of Muhammadans did not exist at the time of the Commission as the number of Muhammadan students seeking collegiate education was very small, only 32 Muhammadans having passed the university entrance examination in 1881. The position of higher education of the Muhammadans of Bengal to-day is the same as was the condition of their primary and secondary education in the days of Sir William Hunter's Commission and we would request you to pay the same consideration to the question of university education as the Commission of 1883 did to that of primary and secondary education of the community.

4. Apart from any consideration of sectarian and separate interests, it is obvious that a university, such as we have in Calcutta, cannot possibly meet the educational

Musalmans of Calcutta—*contd.*

requirements of 45½ millions people. It is not possible for a single university to exercise efficient control over 62 colleges and about 800 high schools scattered all over the Presidency and to satisfactorily discharge the duties and responsibilities of maintaining discipline among more than 20,000 students in colleges and about 2 lakhs and 20 thousand students in schools. Nor is it possible for a single university to satisfy the legitimate needs and aspirations of such a large number of people considering the fact that centralisation of authority, as we have in Calcutta, means the over-concentration of the educational efforts of the Presidency at a single place and the underestimation of the value and possibilities of the development of other places as centres of education. We beg to emphasise, the utmost desirability of establishing teaching universities at Calcutta and Dacca and other places such as Chittagong, Rajshahi, Berhampur and Gauhati. It may not be possible to establish at once teaching universities at places other than Calcutta and Dacca, and it may be necessary to have an organisation, similar to those of modern Indian universities, to control the mofussil colleges and to conduct examinations and award degrees. We would suggest that this organisation should be independent of the teaching universities of Dacca and Calcutta. If, however, a teaching university can act also as a federal university for mofussil colleges, without prejudicing its legitimate duties as a teaching university, we would strongly urge that all the colleges in Eastern Bengal be affiliated to Dacca and not to the Calcutta University. The Muhammadans of Bengal agreed to a non-federal teaching university at Dacca as they were given to understand that it is prejudicial to the interests of sound education to combine in one and the same body the functions of a teaching and a federal university. If the Commission do not share this opinion, the Muhammadans of Bengal may reasonably demand that the Dacca University should be a teaching as well as a federal university for the colleges in Eastern Bengal. If, with a view to make Calcutta the intellectual capital of India, you limit the jurisdiction of the Dacca University to a few square miles in Ramna and entrust education of every type above the primary stage to the Calcutta University and thus expand the jurisdiction of that university more widely than it is at present, you will make the difficult task still more difficult. Such an arrangement, we need scarcely say, would be looked upon by the Mussalmans as a great misfortune. We would suggest as the only possible solution that the mofussil colleges should not be under either of the teaching universities at Calcutta and Dacca, but should be controlled by a separate federal university which may be called the "University of Bengal." On academical grounds also this arrangement appears to be the best that can be devised. Consequently there will be at present three universities in the Presidency—a teaching university in Calcutta, a teaching and residential university at Dacca and the federal university of Bengal, the head-quarters of which on account of easy communication should be in Calcutta but altogether separate from the offices of the Calcutta University.

5. The representation of the Muhammadans in the Calcutta University is at present most inadequate (there being only seven fellows out of a total of 110) and our request is that the number of Muhammadans should be at least 30 per cent. of the total.

The Muhammadan members of the Senate may be elected partly by the Muhammadan registered graduates, partly by the Muhammadan educational officers, partly by the Muhammadan members of the governing bodies of colleges and hostels, and the rest may be nominated by the Governor. We consider it a matter of the greatest importance that Muhammadan members of the Senate should elect their own representatives to the Syndicate, the different faculties, committees and boards created in the constitution in the same proportion as the members of the Senate, except only in the bodies composed of experts alone.

6. We think a sufficient number of qualified Muhammadans would be available to carry on with others the administrative duties of the University as members of the Senate, the Syndicate, the different faculities and boards. It is a common complaint that Muhammadans get no chance of paid posts at the disposal of the Calcutta University. Out of 70 lecturers in the Law College not even one is a Muhammadan, though qualified Muhammadans to fill such posts are not wanting. The position of the Muhammadans in respect of post-graduate studies, university examinations and university offices is hardly better. Only 2 of the university lecturers are Muhammadans and out of 895 examiners for the

Musalmans of Calcutta—*contd.*

different university examinations held last year only 9 were Muhammadans, besides 44 examiners of Arabic, Persian, and Urdu and there is not a single Muhammadan clerk in any of the offices of the Calcutta University. It is no wonder that this is attributed to the dominating influence of one particular community in the controlling bodies of the University. Such a deplorable state of things, we need scarcely say, should be remedied without delay and we would strongly urge that an adequate number of Muhammadans be appointed members of the boards that make the different university appointments.

7. On account of the presence of several colleges in Calcutta some of which have long traditions behind them, it would not be possible to have a uni-college university in Calcutta, and the present colleges will necessarily remain, though in a modified form, as separate entities in the scheme of reorganisation of the teaching university in Calcutta. If you consider it desirable that the colleges in Calcutta should be retained as distinct entities, we would request you to keep the position of the Presidency College just as that of the other colleges. It will serve to maintain a high standard of efficiency for other colleges to follow. The maintenance of the Presidency College is of very great importance to the Muhammadans as it is the only college in the whole Presidency which provides the highest teaching in Arabic, Persian and Urdu prescribed by the University. If, however, its utility be questioned and its abolition recommended we would strongly urge that it should be transformed into the proposed Muhammadan college. The Government has pledged itself to give the Muhammadans a first-grade college, and it would certainly be convenient to transform an existing college into a Muhammadan college, handing over to the University both the recurring and non-recurring grants intended for the proposed Muhammadan college.

8. With the object of providing social life in the college and to create an *esprit de corps* it is desirable that hostels should be attached to the colleges. As it may be difficult to enforce such a rule in the case of Muhammadan students, our suggestion is that the Baker and Elliot hostels be attached to the Madrassah and the proposed Muhammadan college and other colleges be permitted to take in students under conditions similar to those observed in lodging houses in Cambridge and Oxford. A managing committee of Muhammadan gentlemen may also be associated with these hostels with privileges to send representatives to the Senate. It is also desirable that the superintendents of the hostels should be college and university lecturers and that resident maulvis should be appointed as deans of colleges to impart religious instruction and conduct prayers in accordance with their religious beliefs.

9. For the University of Bengal we beg to suggest that the proportion mentioned above may be maintained and that Muhammadans residing in mofussil towns and taking an interest in education be appointed members of the Senate. As the Senate of the University of Bengal is not likely to meet as frequently as the Senate of the Calcutta University it will not be difficult for persons residing in mofussil towns to attend its meetings.

From the note presented by the Muhammadan gentlemen of Dacca we understand that they approve of the idea of a uni-college teaching university, provided that a Muslim hostel with a strong tutorial staff and an efficient residential secondary school are given in the place of the proposed Muhammadan college. As the University of Dacca was promised by Lord Hardinge to the Musalmans of Eastern Bengal as some compensation for the loss of the province they may justly claim that Muhammadans should have more than 50 per cent. of the seats in the senate of that university and should have a dominant voice in the Syndicate and other bodies, including the Board of Appointment.

10. The conduct of the various examinations being practically in the hands of one community there has arisen a feeling of distrust among the Muhammadans who think that they do not always receive just and fair treatment. This feeling has led to a persistent demand that no name should appear on the answer books of the examinees. Resolutions to this effect have been repeatedly passed by both the Provincial and the All-India Muhammadan Educational Conferences. There seems to be no reason why under the present system of examinations an examiner should know the caste and creed of the examinee. Special attention should be paid to this matter.

11. We beg to draw your attention to the difficulty on account of the multiplicity of languages to which a Muhammadan student is put. A Muhammadan boy in Bengal is expected to know five languages—English, the court language, Arabic, the language of their religion, Persian, the language of Islamic culture, Urdu, the *lingua franca* of

Musalmans of Calcutta—*contd.*

Muhammadans and Bengali, the vernacular of the bulk of the population. This has engaged the attention of the Muhammadan leaders and they have come to the conclusion that though we cannot drop the study of any one of the five languages it is not necessary for every individual boy to study all of them. The Muhammadan boy whose mother-tongue is Bengali should receive his primary education in Bengali and should study a classical language, Arabic, Persian or Urdu. We do not think that the study of any one of the above mentioned languages necessarily makes one familiar with any one of the remaining two. They stand to each other in the same relation as English, French and German. We can confidently assert that Urdu for a Bengali-speaking boy is even more difficult than Persian is for a Urdu-speaking boy.

In urging the recognition of Urdu as an alternative to Persian or Arabic we have also taken into consideration the fact that a large number of students do not go beyond the matriculation stage and to them a little knowledge of Urdu, which the matriculation student usually acquires, will be more useful than a little knowledge of either Persian or Arabic.

12. We do not propose in this memorandum to enter into a discussion regarding the school-leaving and the matriculation examinations. But we would draw the attention of the Commission to the following points :—

(*a*) If the University is to continue conducting the matriculation examination, we would urge that each of the three universities, Calcutta, Dacca and Bengal, should be authorised to conduct separate examinations in their respective jurisdictions, and this arrangement will remove the complaint that one university cannot effectively carry on the examination of 18,000 candidates.

(*b*) In case it may be necessary to entrust the examination to one board, we would urge that this board should not be a Government department and it should have representatives of all the universities and a few non-official educationists representing different communities, including Muhammadans, missionaries and others.

13. Before expressing our opinion on the complicated question of the medium of instruction we should like to say that it is not altogether an academic question and before giving your judgment on this point it is absolutely necessary that the political controversies not only in Bengal, but in every other province in India during the last forty years, should be carefully studied. The Muhammadans are convinced that the loss they have sustained in their legitimate share in the administration of the country was due to their apathy to English education and they support the recommendations of the Simla Conference on secondary education held in May 1917. Any change in the existing system will be detrimental to the advancement of English education, the importance of which has been so lately realised by the Musalmans.

The introduction of Bengali as the medium of instruction and examination in the top classes of high schools and the universities will increase, rather than lighten, the burden of a Muhammadan boy, and will surely weaken his knowledge of English. As a Hindu boy improves his Bengali and enlarges his vocabulary by the study of Sanskrit, he will not experience much difficulty in understanding Sanskritised Bengali, which must necessarily be used in higher classes, and the Sanskrit technical terms. Of all the Indian languages Arabic and Sanskrit are the only languages which are adapted like Latin to frame derivative words from the same root for the different phases of the same thing. The technical terms in Bengali must necessarily be framed after the rules of Sanskrit conjugation and not after the rules of Latin conjugation, and hence it is idle to assert that the technical terms will be English. The Muhammadan boy who will study Urdu, Persian or Arabic in place of Sanskrit, will not be in a position to follow the lectures in Bengali.

14. We beg to draw your attention to the controversy on the curriculum of studies in the Calcutta Madrassah raised at the time of the reform scheme of the Dacca Madrassah. It was rightly decided on that occasion that the Calcutta Madrassah should continue to teach the old orthodox course of studies called Dars-i-Nizamia. It is, however, desirable that the University should recognise its teaching and award suitable degrees. We have two-fold reasons for such recommendations :—

(i) We believe that a student who is not satisfied with the university degree of master of arts and who wishes to be a sound scholar in Arabic literature and learning

must have his ground-work in an institution like the Calcutta Madrassah. It will be in the interest of universities if students reading for the M.A. degree in Arabic be permitted to attend lectures of the learned *Maulanas* of the Madrassah.

(ii) We require efficient trained teachers for secondary schools and colleges, and the best method for the training of teachers of Arabic, Persian and Urdu will be to give a course of English lessons followed by a course of training to the students who have completed their education in the Madrassahs.

It would be superfluous to say that the prescribing of the courses of studies and the conduct of examinations in the madrassahs should aways be in the hands of the Muhammadans and no change should be introduced without their consent.

15. Resolutions embodying the following points were passed from time to time by the Muhammadan Educational Conferences and other bodies, and we beg to draw the attention of the Commission to them :—

(*a*) The Assistant Director for Muhammadan Education should be an *ex-officio* member of the Senate and the Syndicate.

(*b*) Every aided college should have at least one Muhammadan on its governing body and it should be a necessary condition of any grant that may be given to it.

(*c*) It is desirable that Muhammadans should be a pointed from time to time as vice-chancellor, inspector of colleges and controller of examinations

(*d*) The Board of Studies of Bengali should have an adequate number of Muhammadans on it.

(*e*) No university examination should be held on Fridays between 12 and 2 P.M. in order to enable Muhammadans to attend their Jumma prayers.

(*f*) At least 50 *per cent.* of seats in Government colleges and 30 *per cent.* in aided colleges should be reserved for Muhammadans.

(*g*) Free studentships for Muhammadans should be allowed in colleges on the same principle as in schools.

(*h*) In order to attract well qualified Muhammadans the scale of remuneration should be brought to the same level as in other departments.

In conclusion, we beg to thank you for granting us an opportunity of representing the feelings and grievances of our co-religionists and for kindly giving us a patient hearing.

AMINUR RAHMAN.

ABDUL KARIM.

A. K. FAZLU' HUQ.

ASHRAF ALI.

ABUL KASEM.

MIRZA SHUJAAT ALI.

MD. SULTAN ALUM.

AMINUL ISLAM.

GOLAM HASAIN ARIFF.

ABDUR RAHIM BUKSH ELAHI.

MIRZA AHMED ALI.

UNSADDAULA.

MOINUDDIN MIRZA.

ABDUL LATIF AHMED.

A. F. M. ABDUR RAHMAN.

NASIR HUSAIN KHYAL.

Musalmans of Chittagong.

Muhammadans have no representative in the Syndicate and Senate of the Calcutta University. The number of Muhammadan fellows is negligible. We desire that all the Muhammadan graduates of three years' standing should be eligible for a fellowship of the Calcutta University, that half the number of members of the Syndicate and the Senate should be Muhammadans and that the Vice-Chancellor should be appointed alternately from among Muhammadans and Hindus as the Muhammadans form 52 per cent. of the population of Bengal.

2. As Muhammadans form three-fourths of the population of Chittagong, it is very reasonable that at least half the chemistry seats in the Chittagong College in the I. A., I. Sc., B. Sc. classes should be reserved for Muhammadan students.

3. Half the seats in all classes of the Chittagong College should be reserved for Muhammadans.

4. A *pucca*, commodious, well-arranged hostel for Muhammadan college students at Chittagong should be built in the course of twelve months like the one in existence for the Hindus.

5. Provision for Arabic and Persian should be made in every Government and aided school.

6. There is a dearth of Muhammadans in the inspecting, teaching and clerical staff of the Education Department. We wish half of the above staffs to be Muhammadans, specially in the university clerical staff.

7. The Chittagong Madrassah is preparing its students according to the reformed scheme.

By next year, a good number of students will be ready to appear at the madrassah final examination which will be conducted on the lines of the Dacca University scheme. As this scheme has not been put into effect these candidates will be penalised unless the Dacca University is established quickly.

We therefore consider it absolutely necessary that the Dacca University should be established within the next twelve months. We, Muhammadans, consider it one of our foremost grievances.

8. We want a residential university with a Muhammadan college in Dacca. The establishment of a Muslim University with a Muhammadan college complete in itself would serve Muhammadan purposes fully and give a great impetus to Muhammadan education.

9. It is a matter of great regret that Cox's Bazar Sub-Division, forming half of the Chittagong District where Muhammadans form about 85 per cent. of its residents should be without a high English school. Government being the biggest proprietor of landed interests at Cox's Bazar where *khas Mehal* yields a revenue of about four and-a-half lakhs, it is very desirable that Government should convert the present provincialised middle English school into a provincialised high English school as promised by the Government after the partition of Bengal; at the time of provincialising the local middle English school at Cox's Bazar. This was prayed for in paragraph 5 of the address presented to His Excellency as follows :—

> "As one of the particular grievances, we most respectfully beg to draw your Excellency's attention to the fact that although Cox's Bazar Sub-Division forms half the portion of this district and is situated at a distance of about 90 miles from the town and notwithstanding the said sub-division yields a very considerable portion of the revenue of the district, it has been thrown to the cold shade of neglect. It has not yet been blessed with even a high English school providing the residents thereof with the most prominent and distinctive benefit of British rule. Suffice it to say that the expenditure incurred by Government for the up-keep of a middle English school at Cox's Bazar is quite disproportionate to the benefit derived therefrom and this will go to meet more than half the expense necessary for the establishment of a high English school. Our humble request therefore is that your Excellency would bless the said sub-division with a long cherished high English school."

Musalmans of Chittagong—*contd.*—Musalmans of Comilla.

10. We feel much aggrieved and our susceptibilities are wounded at the fact that the Government Muslim High English School at Chittagong where all the scholars are Muslim has no provision for religious instruction.

We desire that religious instruction should be provided in such schools.

11. We think that Urdu should be made a second language as an alternative to Persian and Arabic. In Bengali text-books quotations from Sanskrit should be avoided.

12. The Muhammadans of this district being poor, more scholarships, specially for students studying medicine and engineering, should be allotted to this district. This was prayed for in the address referred to above in the following terms :—

> "We therefore most earnestly appeal to your Excellency for fuller recognition of Musalman claims by increasing special scholarships for the deserving poor Musalman students of which two of the value of at least Rs. 30 each should be set apart for those who intend to study medicine and engineering from this district, in consideration of the number of Musalmans of this place, and the dearth of Musalman students in these lines owing to the heavy expenses incurred therein."

13. In schools free-studentships should be eight per cent. of the total number of scholars therein as before, instead of eight per cent. of the number of Muhammadan boys in the school.

14. The schools and colleges should be closed for one hour and-a-half on Fridays on account of Jumma prayer because an hour is not sufficient.

15. The candidates should not be asked to write their names on their answer books for a university examination, but they should be asked to give their roll numbers only.

16. Frequent change of text-books is not desirable in the interest of poor boys.

17. Musalmans should be adequately represented in the governing body of the Chittagong College. At least two non-official Musalman members should be appointed for the purpose.

18. A model middle English school for Muslim girls should be established at Chittagong with special care for the *purdah* system making provision for religious instruction, for sewing, nursing and culinary teaching.

MUBARAK ALI.
JALALUDDIN AHMAD.
ABDUL HALIM.
MUSTOFIZUR RAHMAN KHAN.
IMDAD ALI.
SYED MAQBUL HUSAIN.
ABDUS SATTAR,
NAZIR AHMAD CHAUDHARI.

Musalmans of Commilla.

Adequate representation of Musalmans both on the Senate and the Syndicate.

Musalmans have absolutely no chance of election by the registered graduates. The number of Musalmans should be fixed—There should be at least 40 per cent. of the Musalmans in those bodies elected by Muslim graduates, otherwise it will ever remain a Hindu University.

2. The Vice-Chancellor of the University should be selected alternately from each of the two communities (Hindu and Muslim) like the member of the Executive Council.

3. (*a*) There should be a sufficient number of Muslim examiners.

(*b*) The practice of putting down names on examination papers should be abolished and that of roll numbers substituted in place thereof.

4. There should be adequate representation of Musalmans on the clerical establishment of all colleges and schools under the University nd also on the University itself.

Musalmans of Comilla—*contd.*—Musalmans of Midnapore.

5. Musalmans should have free access to all the different courses and classes of the University. Some time ago, a Muslim graduate with honours in Sanskrit wanted to attend university lectures in Sanskrit for the M. A., but he was most insultingly refused.

6. The Arabic portion of the matriculation Persian course has been abolished, but the anomaly has been retained in the I. A. and B A. courses. There should either be Arabic or Persian (pure and simple) prescribed and not a mixture of the two in the same course.

7. At present there are some colleges and high English schools where no provision is made for teaching Arabic and Persian. Adequate provision for the teaching of Arabic and Persian should be made a condition for the recognition of any college or school, and the defect should be removed in those already recognised.

8. Difficulty of admission of Muslim students into colleges is keenly felt by the community. At least half the seats should be reserved for Musalmans and after their demands are satisfied, the vacancies, if any, may be filled up by the Hindus.

9. Urdu should be adopted as a subject alternative to Sanskrit, Arabic or Persian.

10. Adequate hostel accommodation should be provided in all centres of collegiate education under a Muslim professor, preferably one who is not a professor of Arabic or Persian.

11. No Government grant should be given to a college which does not provide for two seats for Musalmans on its governing body.

12. Special facilities for Friday prayers should be provided for Musalmans in all colleges and schools in Bengal.

13. The above recommendations apply to the Calcutta University and we request that similar arrangements be made for Dacca.

14. The Dacca University should be residential within the Municipal limits of the Dacca town and federal so far as the Eastern Bengal districts are concerned.

Musalmans of Midnapore.

The educational needs of the Muhammadans of Midnapore and a few suggestions for their removal.

(*a*) The necessity of a first-grade college is keenly felt. It will be most advantageous if the existing college be raised to the B. A. standard. The reasons being :—

(i) The Muhammadans being poor, they are unable to meet the high expenses of living etc., in Calcutta.

(ii) The Muhammadans are not desirous of sending their boys to Calcutta where the atmosphere is unwholesome.

(*b*) The governing body of the college should be an independent body and to safeguard Muhammadan interests a sufficient proportion—not less than one-third of the members—should be Muhammadans and they should be elected by the Muhammadan population of the District.

(*c*) Many of the Muhammadan pupils have to abandon their higher studies owing to their dire poverty. Some assistance should be given by the provision of :—

(i) A sufficient number of free-studentships and half free-studentship in the college.

(ii) A larger number of scholarships either from the Mohsin fund or from a special Government fund.

(*d*) A suitable hostel similar to that of the existing Hindu hostel should be established without further delay for the residence of the Muhammadan boys. Until the construction of the proposed hostel a sufficient number of seats in the existing hostel may be set apart for Muhammadan students and a separate kitchen given them.

(*e*) There should be at least two Muhammadans on the professorial staff in the college besides the professor of Arabic and Persian as a sufficient number of Muhammadan M. A's are available.

(*f*) Urdu should be included as one of the second languages as an alternative to Arabic and Persian.

(*g*) The salary of the Persian professor should in no case be lower than that of the Sanskrit professor.

Musalmans of Midnapore.—*contd.*—Musalmans of Rajshahi.

(*h*) The influence of the Hindus is so predominant here that it will be very much to the interest of the public and specially to the Muhammadans, if the entire management of the college is taken away from the Municipality and transferred to the Government.

KABIRUDDIN AHMAD.
SAJJADUL KARIM SUHRAWARDY.
AZIZUL ALUM
ALI REZA.
SYED AMJAD ALI
SYED ALI AHMAD.
S. A. MEHDI.
MAHMOOD SUHRAWARDY

Musalmans of Rajshahi.

The inhabitants of the Rajshahi division find difficulties in obtaining admission and also accommodation in other colleges. It is, therefore, desirable that a first-grade college teaching all honours subjects for the B. A. and all subjects in M. A. should be maintained at Rajshahi. At present no provision is made for honours in Persian, Arabic and political economy and no provision is made for M. A. in any subject. It is our request therefore that these wants should be removed and the college should be fully equipped.

2. At present the number of students allowed to read in the college is 750 and considering the large population, we strongly urge that the number be increased to 1,200, of which 40 per cent. at least should be reserved for Muhammadans. The percentage of Muhammadans in this district is about 80 per cent. and our request for reserving 40 per cent. is very reasonable.

3. The hostel accommodation for Muhammadans is very poor, and it is not excessive for Hindus as well. There are only 30 seats for Muhammadans and 125 for Hindus. The other students live in messes which are sometimes attached and sometimes unattached, and in our opinion they are very unhealthy and not suitable for students to live in ; they are damp, ill-ventilated, situated in undesirable quarters and without proper supervision. We consider it essential in the interests of true education that adequate hostel accommodation may be provided in every college to the extent of 60 per cent. of the total number. It is a great mistake to think of the expansion of colleges without simultaneously thinking of hostel accommodation. We venture to think that private donations will also be forthcoming for the erection of hostels and for the maintenance of colleges.

4. The people of India, and particularly the Muhammadans, are desirous that their boys should receive religious instruction and the majority of Muhammdans even go so far as to think that learning without the provision of religious instruction is no education at all. On account of the policy of non-interference of Government in matters of religion, it is impracticable to provide religious instruction in Government institutions but they can very well be provided in hostels and for this also we impress the necessity for hostel accommodation.

5. Hostels should all be under the immediate supervision of professors. Muhammadan hostels unfortunately materially suffer from the want of Muhammadans on the teaching staff of colleges. There is an erroneous idea that Muhammadans are fit to teach nothing but Arabic and Persian. Consequently, Muhammadans are not appointed to teach subjects other than Persian and Arabic. We do not believe that suitable professors for other subjects are not available. If the desire to appoint them be not wanting, Muhammadan professors will be forthcoming. Until suitable Muhammadans of ability and character are appointed to the teaching staffs of colleges, the management of Muhammadan hostels will never be satisfactory.